

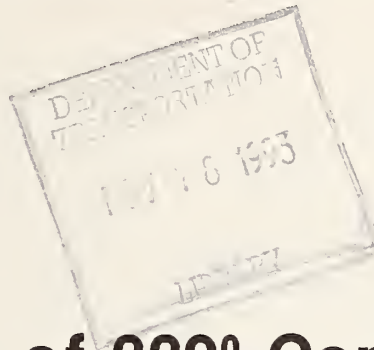
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Department
of Transportation
National Highway
Traffic Safety
Administration

m-491

DOT HS 807 771
Final Report

September 1990



Final Report of 339° Contoured Moving Barrier Impact Into a 1985 Ford Escort 3-Door Hatchback in Support of Crash III Damage Algorithm Reformation

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16. Abstract Four 270° contoured moving barrier impact tests were conducted for research and development in support of the crash III damage algorithm reformulation. These tests were conducted on a 1985 Ford Escort 3-door hatchback, VIN 1FABP3293FW300080, at the Transportation Research Center of Ohio. The following four tests were conducted on one vehicle:																														
<table border="1"> <thead> <tr> <th>TEST NO.</th> <th>DATE</th> <th>TIME</th> <th>SPEED (mph)</th> <th>MAXIMUM CUMULATIVE CRUSH</th> </tr> </thead> <tbody> <tr> <td>900830-1</td> <td>8/30/90</td> <td>1103</td> <td>14.2</td> <td>6.7</td> </tr> <tr> <td>900830-2</td> <td>8/30/90</td> <td>1256</td> <td>28.1</td> <td>17.9</td> </tr> <tr> <td>900830-3</td> <td>8/30/90</td> <td>1419</td> <td>28.3</td> <td>NA</td> </tr> <tr> <td>900830-4</td> <td>8/30/90</td> <td>1535</td> <td>39.8</td> <td>NA</td> </tr> </tbody> </table>					TEST NO.	DATE	TIME	SPEED (mph)	MAXIMUM CUMULATIVE CRUSH	900830-1	8/30/90	1103	14.2	6.7	900830-2	8/30/90	1256	28.1	17.9	900830-3	8/30/90	1419	28.3	NA	900830-4	8/30/90	1535	39.8	NA	
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900830-4	8/30/90	1535	39.8	NA																										
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SECTION 1.0
PURPOSE AND TEST SUMMARY

The purpose of the four 339° contoured moving barrier impact tests was research and development in support of the CRASH III damage algorithm reformulation.

The 1985 Ford Escort was equipped with a 1.9 liter, 4-cylinder, transverse, gasoline engine with a 3-speed automatic transmission. The intended total test weight of the vehicle was 2723 pounds. The actual weight was 2715 pounds.

The contoured moving barrier actual weight was 2723 pounds, frontal width was 67.0 inches, barrier height was 31.5 inches, bumper width was 6.0 inches and height of the bumper centerline was 17.5 inches. The contoured moving barrier was intended to impact the left front corner of the vehicle at 339°. The direction of impact was parallel to a line from the left front corner of the vehicle (initial impact point) through the vehicle's center of gravity.

The impacted vehicle was instrumented with four accelerometers to measure vehicle X-axis and Y-axis acceleration and two accelerometers to measure acceleration perpendicular and parallel to the direction of impact.

The moving barrier was instrumented with two accelerometers to measure X-axis and Y-axis acceleration.

The crash test event was recorded by two (2) high speed motion picture cameras.

SECTION 2.0

VEHICLE INFORMATION

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Company

MAKE/MODEL: Ford Escort

VIN: 1FABP3293FW300080

BODY STYLE: 3-door hatchback

MODEL YEAR: 1985

NHTSA NO.: NA

COLOR: Charcoal gray

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 1.9 liter

TRANSMISSION DATA: 3 SPEED, MANUAL, X AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 8/13/90

ODOMETER READING: 41,808

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	No
RADIO	No	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	No
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company

DATE OF MANUFACTURE: 5/85

VIN: 1FABP3293FW300080

GVWR: 3130 LBS

GAWR: FRONT: 1803 LBS., REAR: 1476 LBS.

TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Triumph P185/80R13

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 35 PSI
REAR: 35 PSI

SPARE TIRE (MFR., LINE, SIZE): NA

TYPE OF SEATS: FRONT: Buckets
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually adjustable

MAXIMUM WIDTH: 66.2 INCHES

WHEELBASE: 94.1 INCHES

LOCATION OF LABEL STATING TIRE & CAPACITY DATA: Passenger door frame

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P165/80R13

RECOMMENDED COLD TIRE PRESSURE: FRONT: 35 PSI; REAR: 35 PSI

DESIGNATED SEATING CAPACITY: 2 FRONT 2 REAR 4 TOTAL

VEHICLE CAPACITY WEIGHT: 650 LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE: LF 26.8 ; RF 27.1 ; LR 26.6 ; RR 26.9

PRE-TEST ATTITUDE: LF 26.1 ; RF 26.3 ; LR 24.3 ; RR 24.9

TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE AS RECEIVED (WITHOUT MAXIMUM FLUIDS):

RIGHT FRONT	732 LBS.	RIGHT REAR	391 LBS.
LEFT FRONT	770 LBS.	LEFT REAR	393 LBS.
TOTAL FRONT WEIGHT	1502 LBS.	(65.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	784 LBS.	(34.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT 2286 LBS.			

TEST VEHICLE'S TARGET TEST WEIGHT: *

TARGET TEST WEIGHT = 2723 LBS

WEIGHT OF TEST VEHICLE:

RIGHT FRONT	759 LBS.	RIGHT REAR	597 LBS.
LEFT FRONT	786 LBS.	LEFT REAR	573 LBS.
TOTAL FRONT WEIGHT	1545 LBS.	(56.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1170 LBS.	(43.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	2715 LBS.	(0.3% UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE: 450 LBS. (150 lbs. in trunk,
300 lbs. behind the front seats)

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 40.6 INCHES REARWARD OF FRONT WHEEL CENTERLINE

*Target test weight was established as the weight of the unballasted moving barrier with the contoured barrier face.

VEHICLE FRONT CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT (17.5 INCHES)

LOCATION	0	1	2	3	4	5	6	7	8									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	17.6	19.8	16.8	22.7	16.2	25.8	15.7	28.4	15.4	31.8	15.1	34.8	14.9	37.8	14.6	40.8	14.1	43.4
POST-TEST 1	23.5	21.9	22.5	24.0	21.6	27.1	20.9	30.0	19.9	32.8	19.1	35.5	18.4	38.4	17.6	41.1	16.9	44.1
POST-TEST 2*	36.4	26.0	34.5	28.5	33.3	31.0	32.2	34.0	30.9	36.8	29.9	39.9	28.8	42.6	27.6	45.4	27.0	47.6
POST-TEST 2	34.1	25.0	32.5	27.5	31.1	30.5	29.9	33.4	28.6	36.2	27.4	39.1	26.5	41.8	25.6	43.9	24.2	46.4
POST-TEST 3*	40.9	27.0	40.1	29.8	40.0	32.2	39.4	35.1	38.5	37.8	37.0	40.8	35.8	43.5	34.5	46.4	33.0	48.8
POST-TEST 4*	NA	NA	NA	NA	NA	NA	46.2	39.8	44.9	42.6	43.6	46.0	42.3	48.6	40.9	51.2	39.6	53.9

LOCATION	9	10	11	12	13	14	15	16	17									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	14.1	46.8	14.1	49.8	14.1	52.8	14.5	55.8	14.8	58.8	14.9	61.8	15.2	64.8	15.6	67.8	16.1	70.8
POST-TEST 1	16.6	47.0	16.2	50.0	16.0	53.2	16.0	56.5	15.9	59.2	16.0	62.5	15.9	65.4	15.9	68.5	15.9	71.4
POST-TEST 2*	25.9	50.0	24.6	53.6	22.3	55.8	20.2	58.2	19.3	60.8	18.4	63.8	17.8	66.6	16.9	69.5	16.2	72.4
POST-TEST 2	23.1	49.0	22.2	52.1	20.7	54.8	19.2	57.8	18.2	60.5	17.2	63.4	16.8	66.2	16.1	69.1	15.9	72.2
POST-TEST 3*	31.9	51.0	30.9	52.1	28.2	54.8	24.5	56.4	22.4	57.9	20.8	62.6	19.6	65.2	18.0	67.8	17.0	70.6
POST-TEST 4*	38.2	56.0	37.1	58.9	33.9	59.2	30.2	59.6	28.1	60.6	25.6	63.0	23.5	64.7	21.1	66.5	19.0	68.1

LOCATION	18	19	20	21	22	23	24	25	26
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	16.4	73.8	17.4	76.8	NA	NA	NA	NA	NA
POST-TEST 1	16.1	74.3	16.6	77.2	NA	NA	NA	NA	NA
POST-TEST 2*	15.5	74.9	15.8	77.8	NA	NA	NA	NA	NA
POST-TEST 2	15.6	75.0	15.8	77.9	NA	NA	NA	NA	NA
POST-TEST 3*	15.2	72.8	15.0	75.6	NA	NA	NA	NA	NA
POST-TEST 4*	16.9	70.1	15.0	72.0	NA	NA	NA	NA	NA

All measurements are in inches. Column readings are three inches apart from left to right on vehicle.

All X-axis measurements taken from a reference plane 180 inches from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT MOVING BARRIER BUMPER HEIGHT (17.5 INCHES)

LOCATION	1		2		3		4		5		6		7		8		9	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	20.6	19.2	23.6	18.9	26.6	18.5	29.6	18.4	32.6	17.9	35.6	17.5	NA	NA	NA	NA	NA	NA
POST-TEST 1	25.6	20.2	26.5	21.1	28.1	19.4	31.0	18.6	33.6	17.5	36.4	16.8	NA	NA	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA	36.1	24.5	37.2	22.1	38.7	19.3	39.3	16.3	NA	NA	NA	39.8	14.6	42.8
POST-TEST 3	NA	NA	NA	NA	NA	NA	43.0	22.4	44.1	19.8	45.0	17.0	NA	NA	NA	43.8	14.7	46.2
POST-TEST 4	NA	NA	NA	NA	49.8	28.9	51.4	26.4	52.2	23.8	52.4	21.0	NA	NA	NA	52.8	19.2	54.0

LOCATION	10		11		12		13		14		15		16		17		18	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.6	16.8	68.6	17.2	71.6	17.5
POST-TEST 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.4	16.8	68.5	17.2	71.6	17.5
POST-TEST 2	45.6	15.1	49.1	15.5	52.0	15.9	55.1	16.2	58.4	16.4	61.4	16.3	64.5	17.2	67.5	17.5	70.5	17.1
POST-TEST 3	49.0	14.8	52.1	15.6	54.8	15.9	58.2	16.1	61.1	17.0	63.0	16.8	66.5	17.0	69.2	18.1	71.6	17.6
POST-TEST 4	56.0	20.5	57.8	21.2	59.5	21.4	62.0	21.7	64.0	20.9	66.2	20.1	68.9	19.1	71.8	20.2	72.8	19.5

LOCATION	19		20		21		22		23		24		25		26		27	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	74.6	17.5	77.6	17.4	80.6	17.3	83.6	17.4	86.6	17.4	89.6	17.2	92.6	17.1	95.6	17.2	98.6	17.0
POST-TEST 1	74.6	17.5	77.6	17.4	80.6	17.3	83.6	17.4	86.6	17.4	89.6	17.2	92.6	17.1	95.6	17.2	98.6	17.0
POST-TEST 2	73.5	17.6	77.6	17.4	80.6	17.6	83.6	17.2	86.6	17.4	89.6	17.2	92.6	17.1	95.6	17.2	98.6	17.0
POST-TEST 3	74.6	17.4	77.8	17.2	80.6	17.6	83.6	17.2	86.6	17.4	89.6	17.2	92.6	17.1	95.6	17.2	98.6	17.0
POST-TEST 4	75.6	19.6	78.6	19.2	81.6	19.1	84.6	18.6	87.9	18.8	90.8	17.9	93.8	17.7	96.8	17.8	99.8	17.4

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 180 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT MOVING BARRIER BUMPER HEIGHT (17.5 INCHES) CONTINUED

LOCATION	28		29		30		31		32		33		34		35		36	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	101.6	17.0	104.6	17.0	107.6	16.9	110.6	17.0	113.6	17.0	116.6	16.9	119.6	17.0	NA	NA	NA	NA
POST-TEST 1	101.6	17.0	104.6	17.0	107.6	16.9	110.6	17.0	113.6	17.0	116.6	16.9	119.6	17.0	NA	NA	NA	NA
POST-TEST 2	101.6	17.0	104.6	17.0	107.6	16.9	110.6	17.0	113.6	17.0	116.6	16.9	119.6	17.0	NA	NA	NA	NA
POST-TEST 3	101.6	17.0	104.6	17.0	107.6	16.9	110.6	17.0	113.6	17.0	116.6	16.9	119.6	17.0	NA	NA	NA	NA
POST-TEST 4	102.9	16.8	106.0	16.9	108.8	16.9	111.8	16.8	114.9	16.6	117.9	16.8	120.0	17.4	NA	NA	NA	NA

LOCATION	37	38	39	40
	X	Y	X	Y
PRE-TEST	NA	NA	NA	NA
POST-TEST 1	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA
POST-TEST 3	NA	NA	NA	NA
POST-TEST 4	NA	NA	NA	NA

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 180 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT SILL HEIGHT (11.0 INCHES)

LOCATION	1	2	3	4	5	6	7	8	9
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	NA	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	10	11	12	13	14	15	16	17	18
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	NA	NA	NA	NA	NA	NA	65.9	18.5	68.9
POST-TEST 1	NA	NA	NA	NA	NA	NA	65.5	18.4	68.9
POST-TEST 2	NA	NA	NA	NA	NA	NA	64.5	18.6	67.5
POST-TEST 3	NA	NA	NA	NA	NA	NA	66.0	19.1	68.8
POST-TEST 4	NA	NA	NA	NA	NA	NA	69.2	22.4	70.9

LOCATION	19	20	21	22	23	24	25	26	27
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	74.9	18.2	77.9	18.5	80.9	18.6	83.9	18.6	86.9
POST-TEST 1	74.9	18.2	77.9	18.5	80.9	18.6	83.9	18.6	86.9
POST-TEST 2	74.9	18.2	77.9	18.5	80.9	18.6	83.9	18.6	86.9
POST-TEST 3	74.4	19.0	77.1	18.9	80.2	18.8	83.4	18.7	86.4
POST-TEST 4	76.1	21.4	79.0	20.9	81.0	20.2	84.2	19.9	87.2

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 180 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

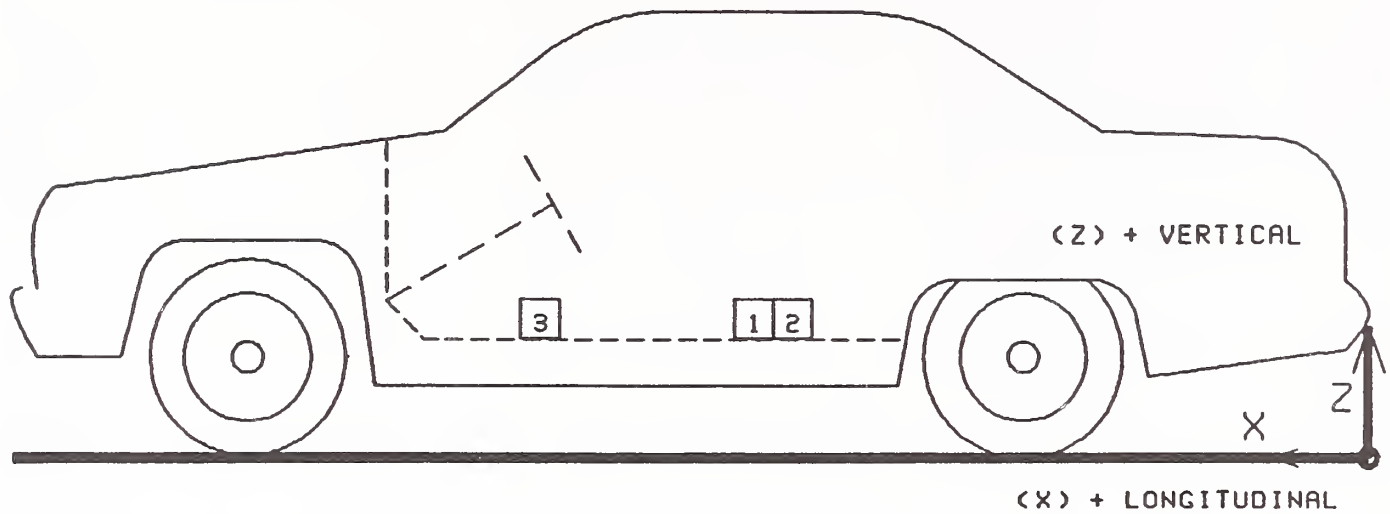
VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT SILL HEIGHT (11.0 INCHES) CONTINUED

LOCATION	28		29		30		31		32		33		34		35		36	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	101.9	18.4	104.9	18.5	107.9	18.4	110.9	18.2	113.9	18.5	116.9	18.2	119.9	18.4	NA	NA	NA	NA
POST-TEST 1	101.9	18.4	104.9	18.5	107.9	18.4	110.9	18.2	113.9	18.5	116.9	18.2	119.9	18.4	NA	NA	NA	NA
POST-TEST 2	101.9	18.4	104.9	18.5	107.9	18.4	110.9	18.2	113.9	18.5	116.9	18.2	119.9	18.4	NA	NA	NA	NA
POST-TEST 3	101.4	18.4	104.5	18.5	107.9	18.4	110.9	18.2	113.9	18.5	116.9	18.2	119.9	18.4	NA	NA	NA	NA
POST-TEST 4	102.8	19.2	104.5	19.1	108.6	19.0	111.6	18.9	114.5	18.9	117.5	18.9	120.5	18.9	NA	NA	NA	NA

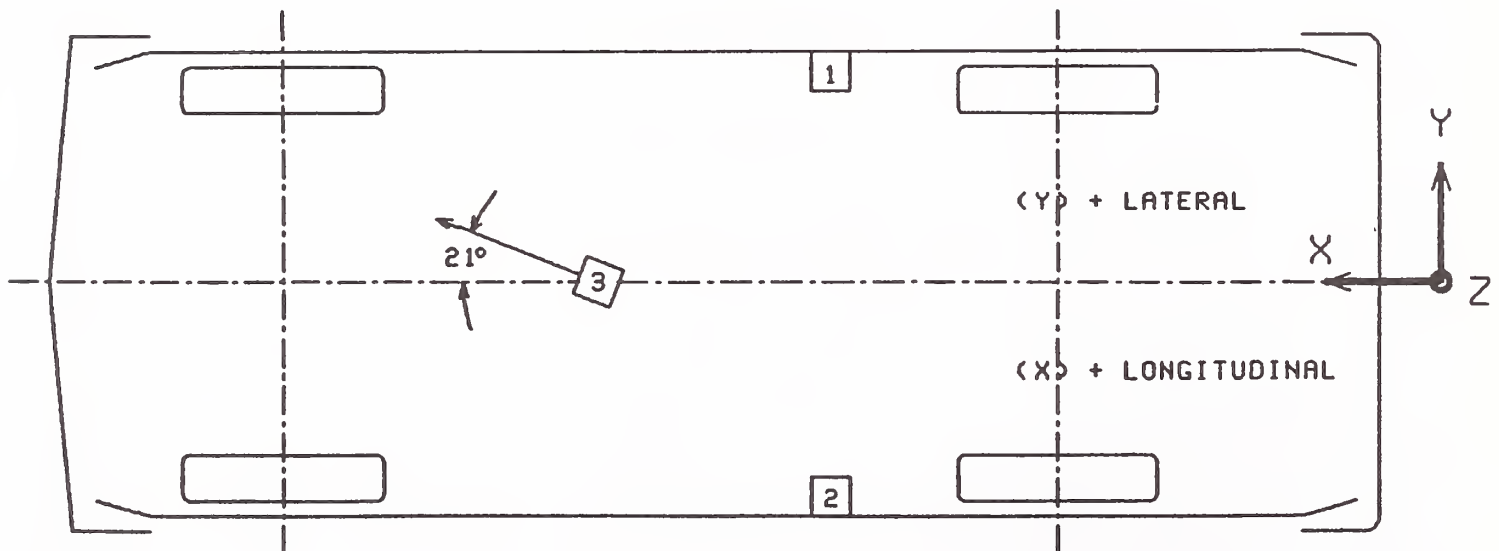
LOCATION	37	38	39	40
	X	Y	X	Y
PRE-TEST	NA	NA	NA	NA
POST-TEST 1	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA
POST-TEST 3	NA	NA	NA	NA
POST-TEST 4	NA	NA	NA	NA

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 180 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.
 *Measurements taken at maximum crush height.

VEHICLE ACCELEROMETER PLACEMENT

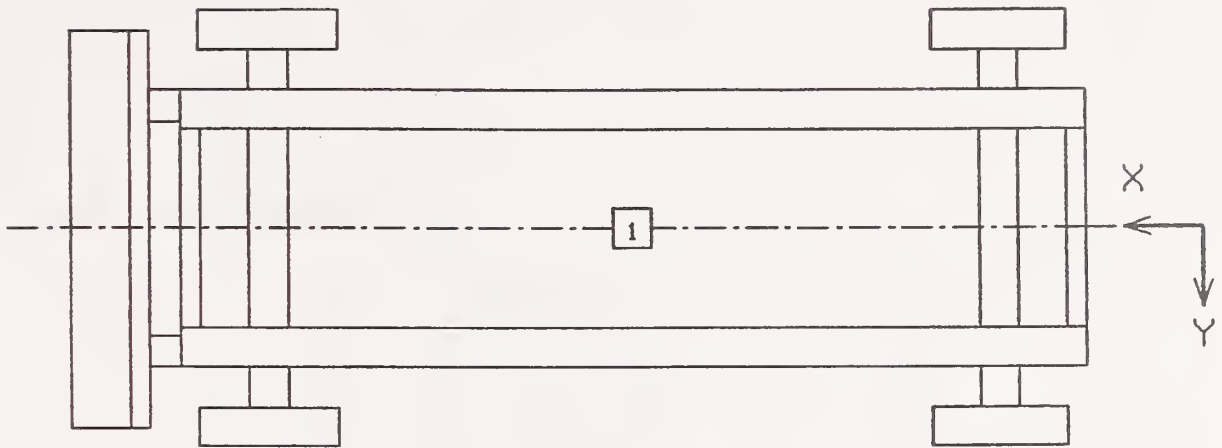


SIDE VIEW

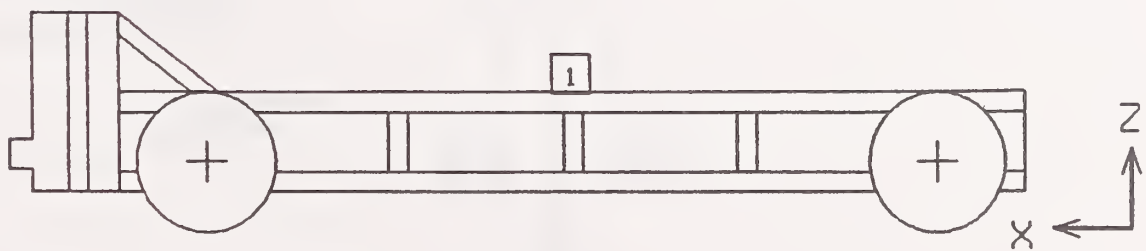


BOTTOM VIEW

MOVING BARRIER
ACCELEROMETER PLACEMENT

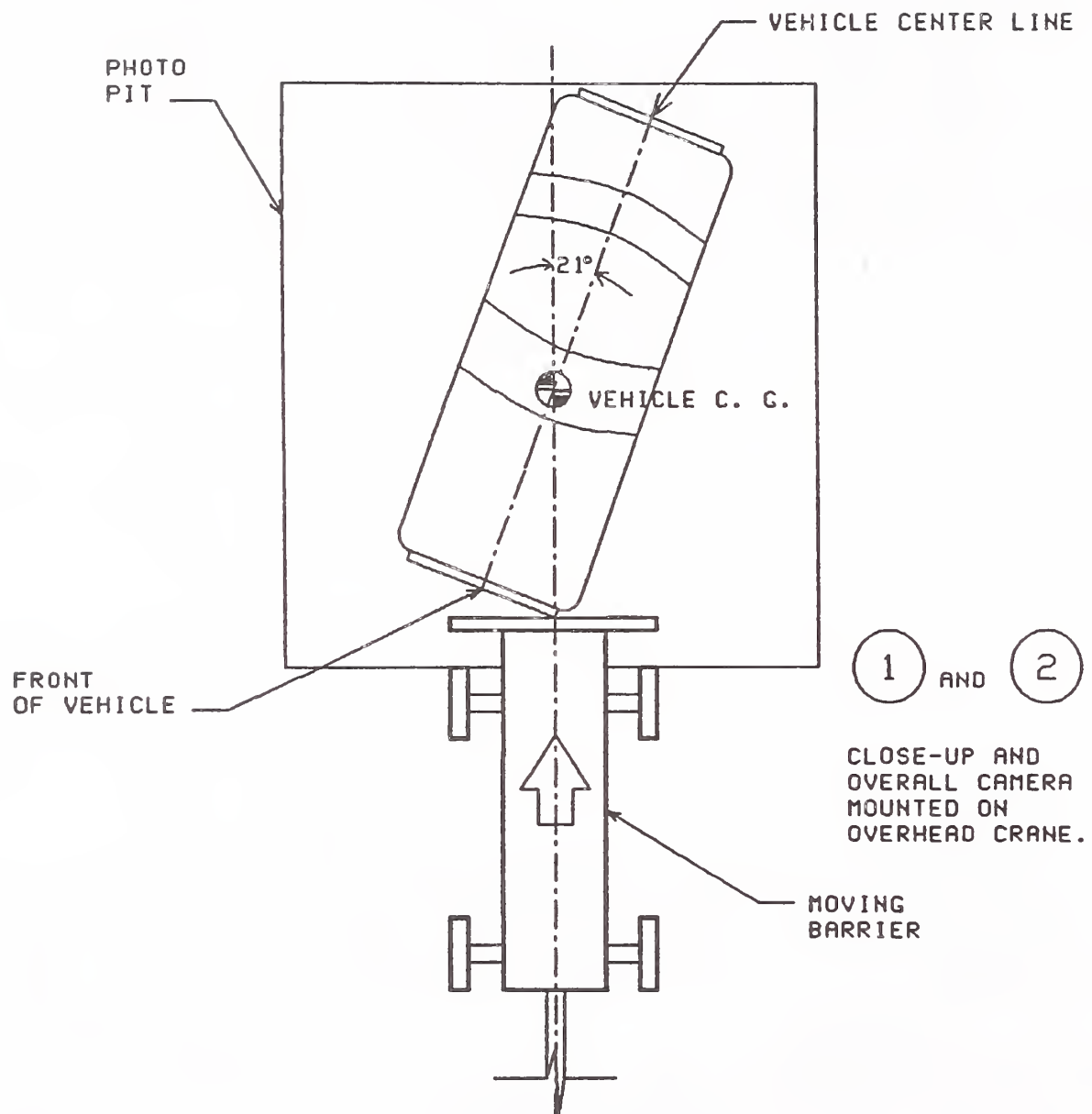


TOP VIEW



SIDE VIEW

CAMERA POSITIONS



SECTION 3.0

TEST 900830-1 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900830-1

DATE OF TEST: 8/30/90

TIME OF TEST: 1103

AMBIENT TEMPERATURE AT IMPACT AREA: 74° F

INTENDED MOVING BARRIER VELOCITY: 14.4 MPH

ACTUAL MOVING BARRIER VELOCITY: 14.2 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 15.0

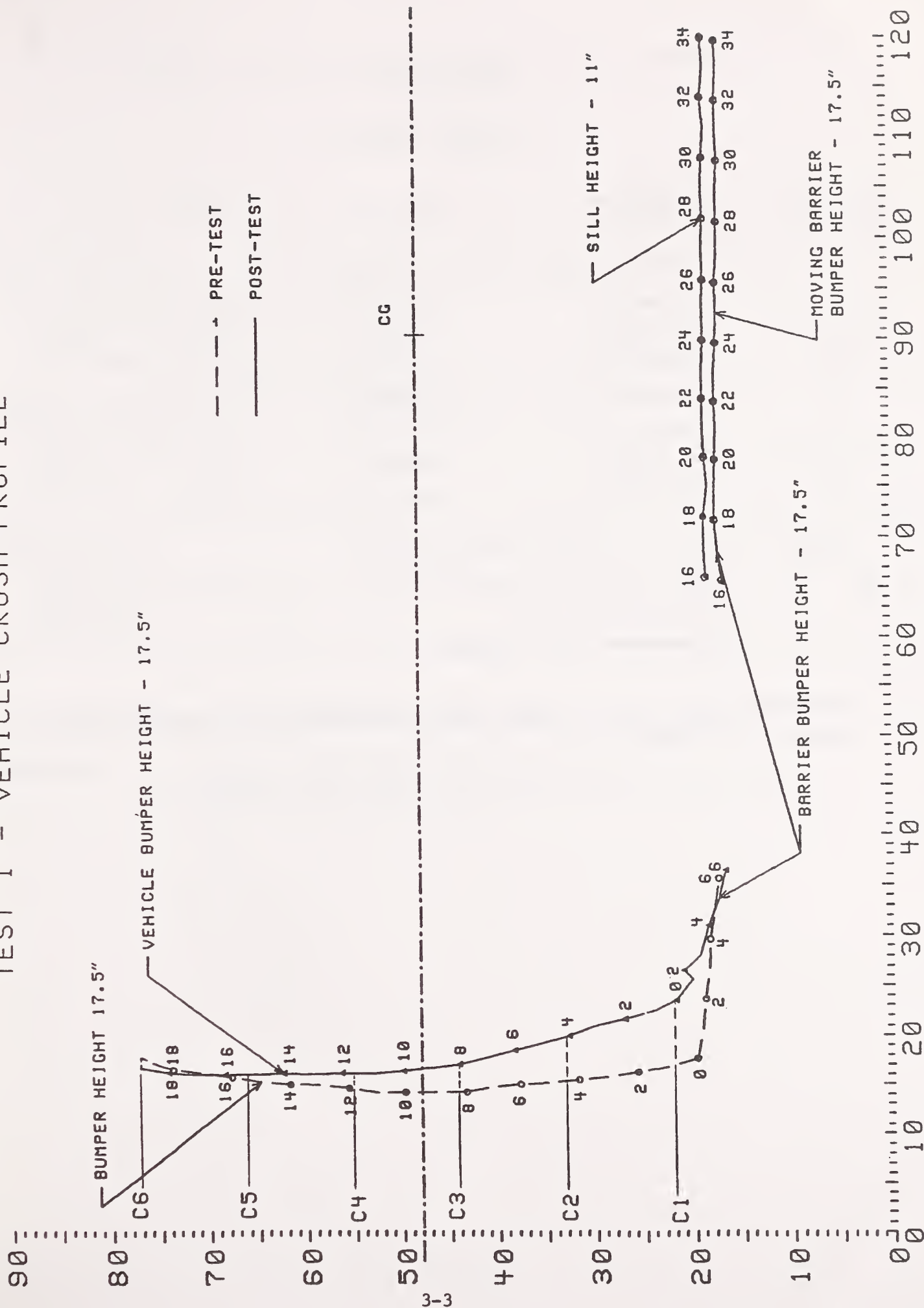
MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 6.7

VEHICLE ATTITUDES:

POST-TEST: LF: 26.8; RF: 26.2; LR: 24.2; RR: 24.4

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

TEST 1 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH

TEST NO. 900830-1

	PRE-TEST	POST-TEST	CRUSH
L	<u>55.3</u>		
C1	<u>16.8</u>	<u>23.5</u>	<u>6.7</u>
C2	<u>15.4</u>	<u>19.9</u>	<u>4.5</u>
C3	<u>14.1</u>	<u>16.9</u>	<u>2.8</u>
C4	<u>14.5</u>	<u>16.0</u>	<u>1.5</u>
C5	<u>15.2</u>	<u>15.9</u>	<u>0.7</u>
C6	<u>17.4</u>	<u>16.6</u>	<u>-0.8</u>
CL	<u>14.1</u>	<u>16.6</u>	<u>2.5</u>

NOTES: L is Pre-test length of damage surface
C1 through C6 are spaced equally apart
CL is vehicle centerline
ALL MEASUREMENTS ARE IN INCHES

MEASUREMENTS TAKEN FROM A REFERENCE PLANE 180 INCHES FROM AND PARALLEL TO THE
VEHICLE'S REAR BUMPER.

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-1

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	LEFT FRONT SILL	58.1	24.5	10.8				
	ACCELERATION							
	LONGITUDINAL				0.5	136.4	7.8	33.0
	LATERAL				2.3	101.9	3.5	50.0
	RESULTANT				7.9	33.0		
2	RIGHT FRONT SILL	58.0	-24.5	10.5				
	ACCELERATION							
	LONGITUDINAL				1.1	180.3	8.7	38.5
	LATERAL				1.7	102.6	3.2	21.5
	RESULTANT				8.7	38.5		
3	VEHICLE CG	89.5	0.0	12.5				
	ACCELERATION							
	PARALLEL TO IMPACT				1.0	125.4	8.6	42.1
	PERPENDICULAR TO IMPACT				5.2	35.5	3.2	22.3
	RESULTANT				8.7	42.1		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR BUMPER
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-1

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX	G MSEC	MAX	G MSEC
1 MOVING BARRIER	75.2	0.0	12.3				
CG ACCELERATION							
LONGITUDINAL				0.4	200.3	8.3	57.3
LATERAL				0.9	165.1	0.7	10.0
RESULTANT				8.3	57.3		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR SURFACE
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

TEST #900830-1

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	500	Impact overall
2	Overhead tight	Photosonic 1B	25	502	Impact close-up

SECTION 4.0

TEST 900830-2 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900830-2

DATE OF TEST: 8/30/90

TIME OF TEST: 1256

AMBIENT TEMPERATURE AT IMPACT AREA: 74° F

INTENDED MOVING BARRIER VELOCITY: 28.2 MPH

ACTUAL MOVING BARRIER VELOCITY: 28.1 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 33.0

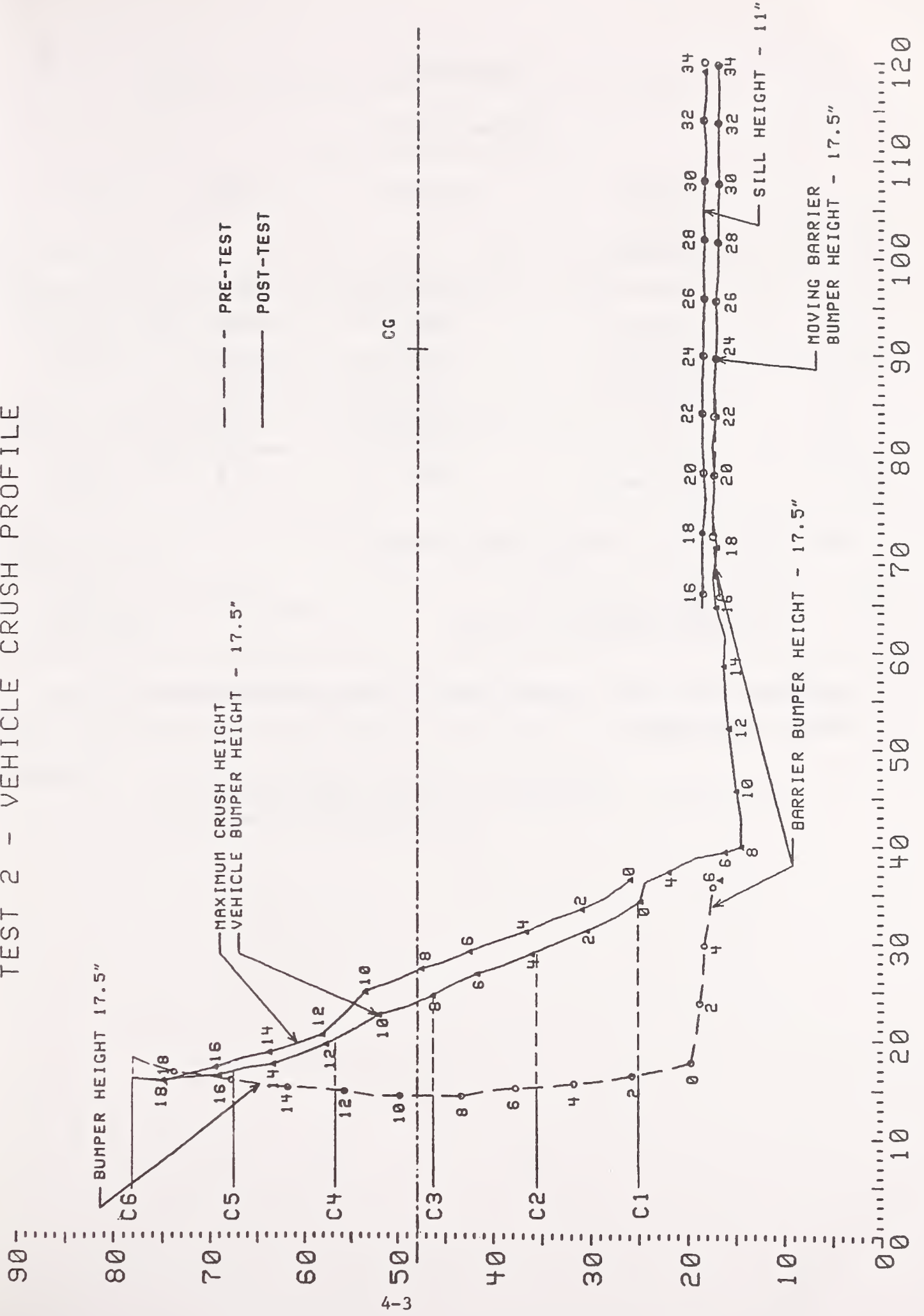
MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 17.9

VEHICLE ATTITUDES:

POST-TEST: LF: 27.3; RF: 25.2; LR: 24.8; RR: 24.1

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

TEST 2 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH

TEST NO. 900830-2

	PRE-TEST	POST-TEST	CRUSH
L	<u>52.9</u>		
C1	<u>16.2</u>	<u>34.1</u>	<u>17.9</u>
C2	<u>15.1</u>	<u>28.6</u>	<u>13.5</u>
C3	<u>14.1</u>	<u>24.2</u>	<u>10.1</u>
C4	<u>14.5</u>	<u>19.2</u>	<u>4.7</u>
C5	<u>15.6</u>	<u>16.8</u>	<u>1.2</u>
C6	<u>17.4</u>	<u>15.8</u>	<u>-1.6</u>
CL	<u>14.1</u>	<u>23.1</u>	<u>9.0</u>

NOTES: L is Pre-test length of damage surface

C1 through C6 are spaced equally apart

CL is vehicle centerline

ALL MEASUREMENTS ARE IN INCHES

MEASUREMENTS TAKEN FROM A REFERENCE PLANE 180 INCHES FROM AND PARALLEL TO THE
VEHICLE'S REAR BUMPER

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-2

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	LEFT FRONT SILL	58.1	24.5	10.8				
	ACCELERATION							
	LONGITUDINAL				3.0	80.5	14.4	53.4
	LATERAL				3.0	100.0	8.2	31.0
	RESULTANT				14.6	28.3		
2	RIGHT FRONT SILL	58.0	-24.5	10.5				
	ACCELERATION							
	LONGITUDINAL				1.9	103.6	18.1	46.6
	LATERAL				2.9	105.9	7.1	38.5
	RESULTANT				18.7	46.4		
3	VEHICLE CG	89.5	0.0	12.5				
	ACCELERATION							
	PARALLEL TO IMPACT				5.8	37.1	26.6	32.9
	PERPENDICULAR TO IMPACT				13.5	32.6	12.6	28.1
	RESULTANT				29.8	32.8		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR BUMPER
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-2

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	MOVING BARRIER	75.2	0.0	12.3				
	CG ACCELERATION							
	LONGITUDINAL				0.6	181.8	22.6	26.5
	LATERAL				4.3	58.0	3.5	51.4
	RESULTANT				22.6	26.5		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR SURFACE
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

TEST #900830 - 2

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	500	Impact overall
2	Overhead tight	Photosonic 1B	25	500	Impact close-up

SECTION 5.0

TEST 900830-3 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900830-3

DATE OF TEST: 8/30/90

TIME OF TEST: 1419

AMBIENT TEMPERATURE AT IMPACT AREA: 76° F

INTENDED MOVING BARRIER VELOCITY: 28.4 MPH

ACTUAL MOVING BARRIER VELOCITY: 28.3 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 43.9

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT *

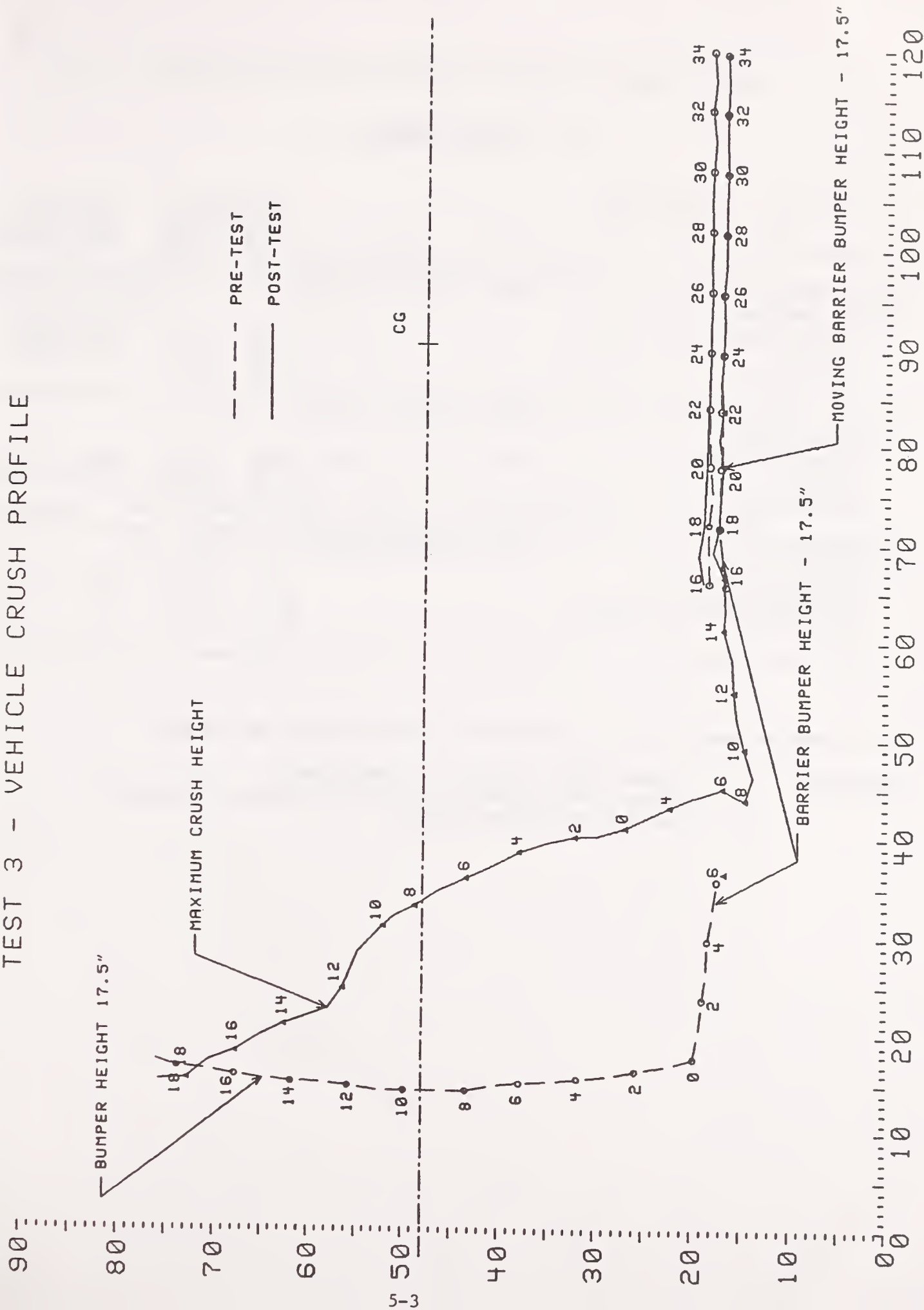
VEHICLE ATTITUDES:

POST-TEST: LF: 28.8; RF: 25.1; LR: 24.3; RR: 23.5

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

*Crush measurements for test 900830-3 are not available. The measurement points were placed on the front bumper molding which was torn off of the vehicle during the third impact. The points used to construct the post-test maximum crush height profile for test 900830-3 were added to the vehicle after the second impact, thus no pre-test coordinates of these points are available.

TEST 3 - VEHICLE CRUSH PROFILE



VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-3

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	LEFT FRONT SILL	58.1	24.5	10.8				
	ACCELERATION							
	LONGITUDINAL				2.1	111.3	15.5	12.4
	LATERAL				1.0	7.5	11.0	14.3
	RESULTANT				17.4	12.9		
2	RIGHT FRONT SILL	58.0	-24.5	10.5				
	ACCELERATION							
	LONGITUDINAL				3.8	97.4	23.2	27.1
	LATERAL				2.8	90.9	9.0	32.8
	RESULTANT				23.3	27.3		
3	VEHICLE CG	89.5	0.0	12.5				
	ACCELERATION							
	PARALLEL TO IMPACT				3.7	95.3	31.1	12.1
	PERPENDICULAR TO IMPACT				11.9	20.0	6.7	14.8
	RESULTANT				31.2	12.1		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR BUMPER
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-3

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	MOVING BARRIER	75.2	0.0	12.3				
	CG ACCELERATION							
	LONGITUDINAL				1.7	116.8	24.8	15.6
	LATERAL				5.3	37.1	8.1	20.4
	RESULTANT				24.9	15.5		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR SURFACE
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

TEST #900830-3

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	498	Impact overall
2	Overhead tight	Photosonic 1B	25	500	Impact close-up

SECTION 6.0

TEST 900830-4 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900830-4

DATE OF TEST: 8/30/90

TIME OF TEST: 1535

AMBIENT TEMPERATURE AT IMPACT AREA: 78° F

INTENDED MOVING BARRIER VELOCITY: 40.0 MPH

ACTUAL MOVING BARRIER VELOCITY: 39.8 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 43.9

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT *

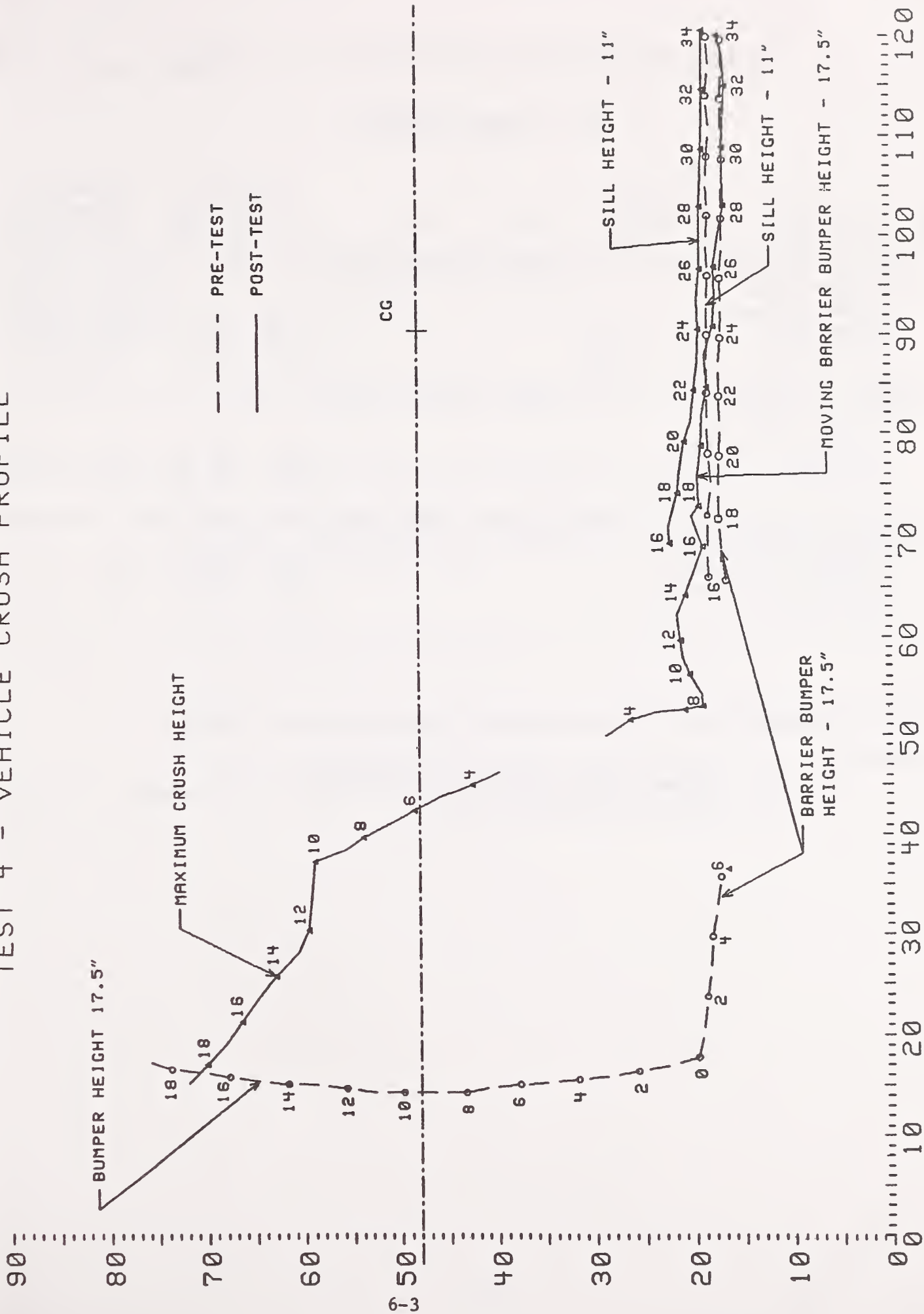
VEHICLE ATTITUDES:

POST-TEST: LF: 27.6; RF: 23.4; LR: 23.4; RR: 25.6

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

*Crush measurements for test 900830-4 are not available. The measurement points were placed on the front bumper molding which was torn off of the vehicle during the third impact. The points used to construct the post-test maximum crush height profile for test 900830-4 were added to the vehicle after the second impact, thus no pre-test coordinates of these points are available.

TEST 4 - VEHICLE CRUSH PROFILE



VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-4

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	LEFT FRONT SILL	58.1	24.5	10.8				
	ACCELERATION							
	LONGITUDINAL				2.0	123.0	24.6	26.3
	LATERAL				2.6	97.3	14.6	34.1
	RESULTANT				26.1	26.4		
2	RIGHT FRONT SILL	58.0	-24.5	10.5				
	ACCELERATION							
	LONGITUDINAL				2.8	86.8	37.8	30.8
	LATERAL				10.8	31.4	13.4	15.9
	RESULTANT				39.1	31.0		
3	VEHICLE CG	89.5	0.0	12.5				
	ACCELERATION							
	PARALLEL TO IMPACT				4.1	100.9	48.9	19.4
	PERPENDICULAR TO IMPACT				17.1	9.9	19.6	13.9
	RESULTANT				49.2	19.4		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR BUMPER
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900830-4

No.	LOCATION	X*	Y*	Z*	POSITIVE	NEGATIVE	
					DIRECTION	DIRECTION	
					MAX G MSEC	MAX G MSEC	MAX G MSEC
1	MOVING BARRIER	75.2	0.0	12.3			
	CG ACCELERATION						
	LONGITUDINAL				-1.6	90.5	60.6
	LATERAL				17.2	27.6	28.5
	RESULTANT				60.9	8.1	16.5

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: +X: FORWARD FROM VEHICLE'S REAR SURFACE
 +Y: LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 +Z: UPWARD FROM GROUND LEVEL

TEST #900830-4

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	500	Impact overall
2	Overhead tight	Photosonic 1B	25	500	Impact overall

APPENDIX A
PHOTOGRAPHS

TEST #900830-1
LIST OF PHOTOGRAPHS

- 1 PRE-TEST FRONT VIEW
2. POST-TEST FRONT VIEW
3. PRE-TEST LEFT SIDE - VIEW 1
4. PRE-TEST LEFT SIDE - VIEW 2
5. POST-TEST LEFT SIDE VIEW
6. PRE-TEST LEFT SIDE CLOSEUP VIEW
7. POST-TEST LEFT SIDE CLOSEUP VIEW
8. PRE-TEST RIGHT SIDE VIEW
9. POST-TEST RIGHT SIDE VIEW
10. PRE-TEST RIGHT SIDE CLOSEUP VIEW
11. POST-TEST RIGHT SIDE CLOSEUP VIEW
12. PRE-TEST REAR VIEW
13. POST-TEST REAR VIEW
14. POST-TEST LEFT FRONT THREE-QUARTER VIEW
15. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
16. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. PRE-TEST FRONT VIEW



Figure A-2. POST-TEST FRONT VIEW



Figure A-3. PRE-TEST LEFT SIDE - VIEW 1



Figure A-4. PRE-TEST LEFT SIDE - VIEW 2



Figure A-5. POST-TEST LEFT SIDE VIEW



Figure A-6. PRE-TEST LEFT SIDE CLOSE-UP VIEW



Figure A-7. POST-TEST LEFT SIDE CLOSE-UP VIEW



Figure A-8. PRE-TEST RIGHT SIDE VIEW



Figure A-9. POST-TEST RIGHT SIDE VIEW



Figure A-10. PRE-TEST RIGHT SIDE CLOSE-UP VIEW



Figure A-11. POST-TEST RIGHT SIDE CLOSE-UP VIEW



Figure A-12. PRE-TEST REAR VIEW



Figure A-13. POST-TEST REAR VIEW



Figure A-14. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-15. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-16. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

TEST #900830-2

LIST OF PHOTOGRAPHS

1. POST-TEST FRONT VIEW
2. PRE-TEST LEFT SIDE VIEW
3. POST-TEST LEFT SIDE VIEW
4. POST-TEST LEFT SIDE CLOSEUP VIEW
5. POST-TEST RIGHT SIDE VIEW
6. POST-TEST RIGHT SIDE CLOSEUP VIEW
7. POST-TEST REAR VIEW
8. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
9. POST-TEST LEFT FRONT THREE-QUARTER VIEW
10. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
11. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. PRE-TEST LEFT SIDE VIEW



Figure A-3. POST-TEST LEFT SIDE VIEW

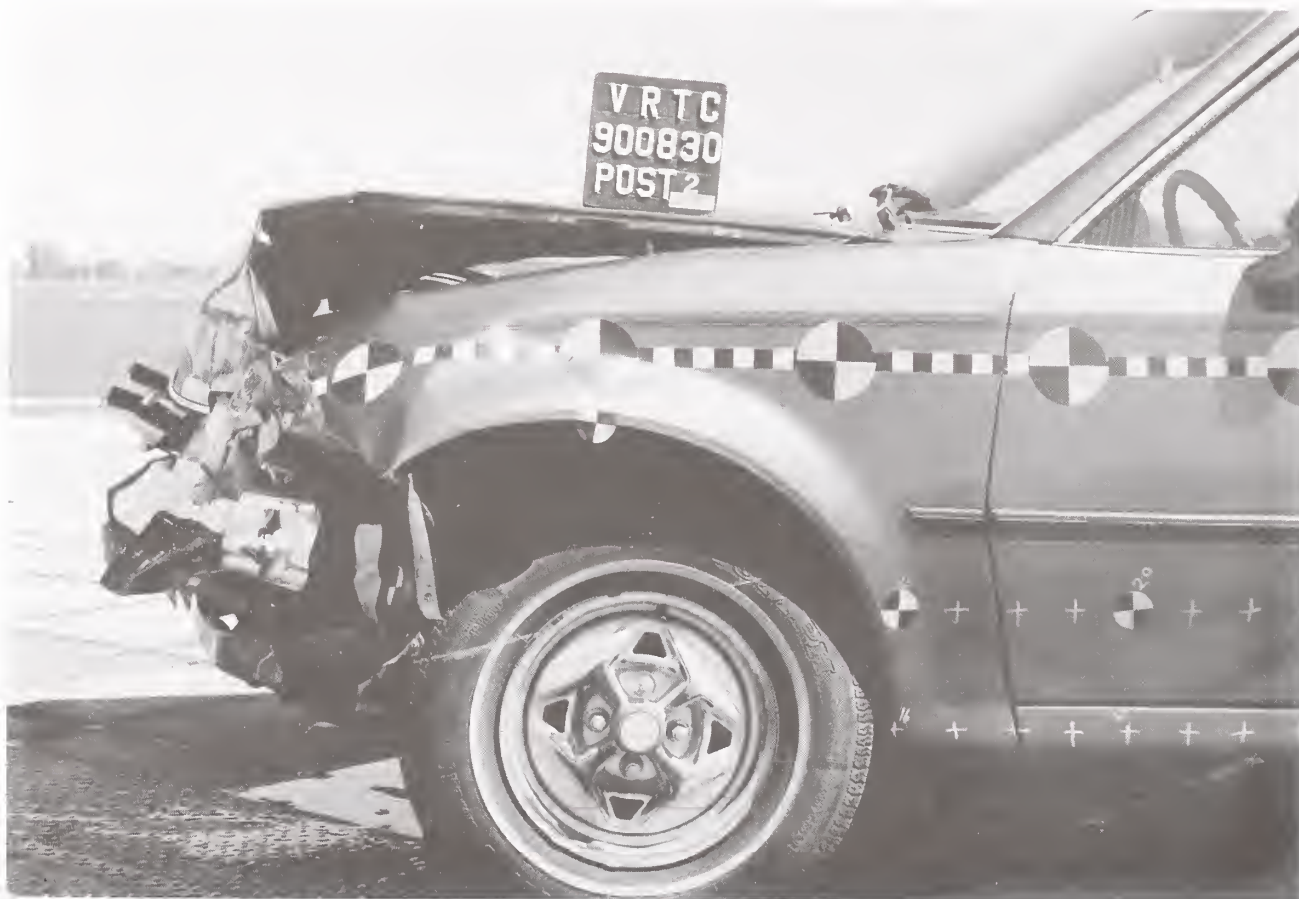


Figure A-4. POST-TEST LEFT SIDE CLOSE-UP VIEW



Figure A-5. POST-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST RIGHT SIDE CLOSE-UP VIEW

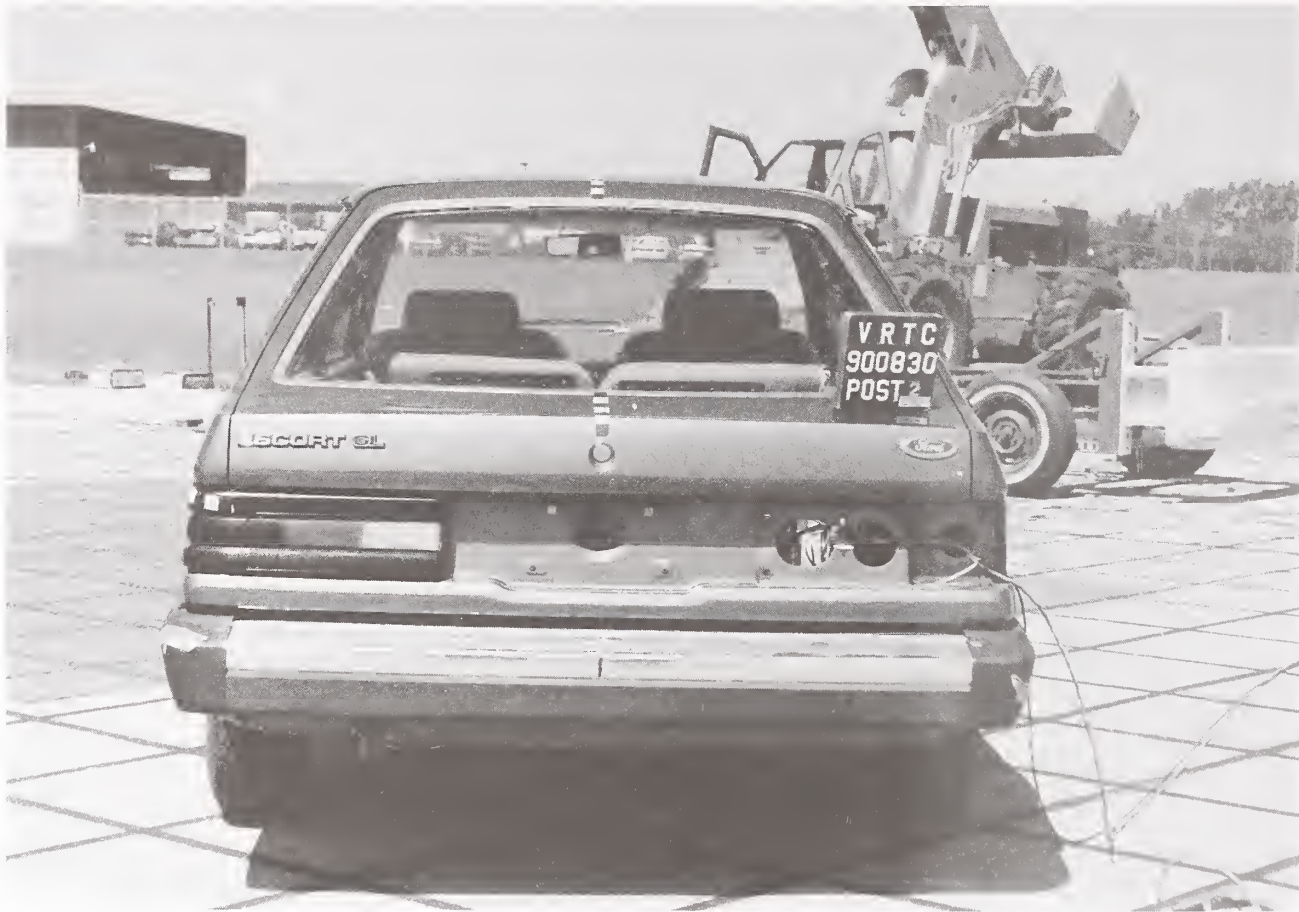


Figure A-7. POST-TEST REAR VIEW



Figure A-8. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-9. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-10. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-11. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

TEST #900830-3
LIST OF PHOTOGRAPHS

- 1 POST-TEST FRONT VIEW
2. POST-TEST LEFT SIDE VIEW
3. POST-TEST LEFT SIDE CLOSEUP VIEW
4. POST-TEST RIGHT SIDE VIEW
5. POST-TEST RIGHT SIDE CLOSEUP VIEW
6. POST-TEST REAR VIEW
7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
8. POST-TEST LEFT FRONT THREE-QUARTER VIEW
9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW

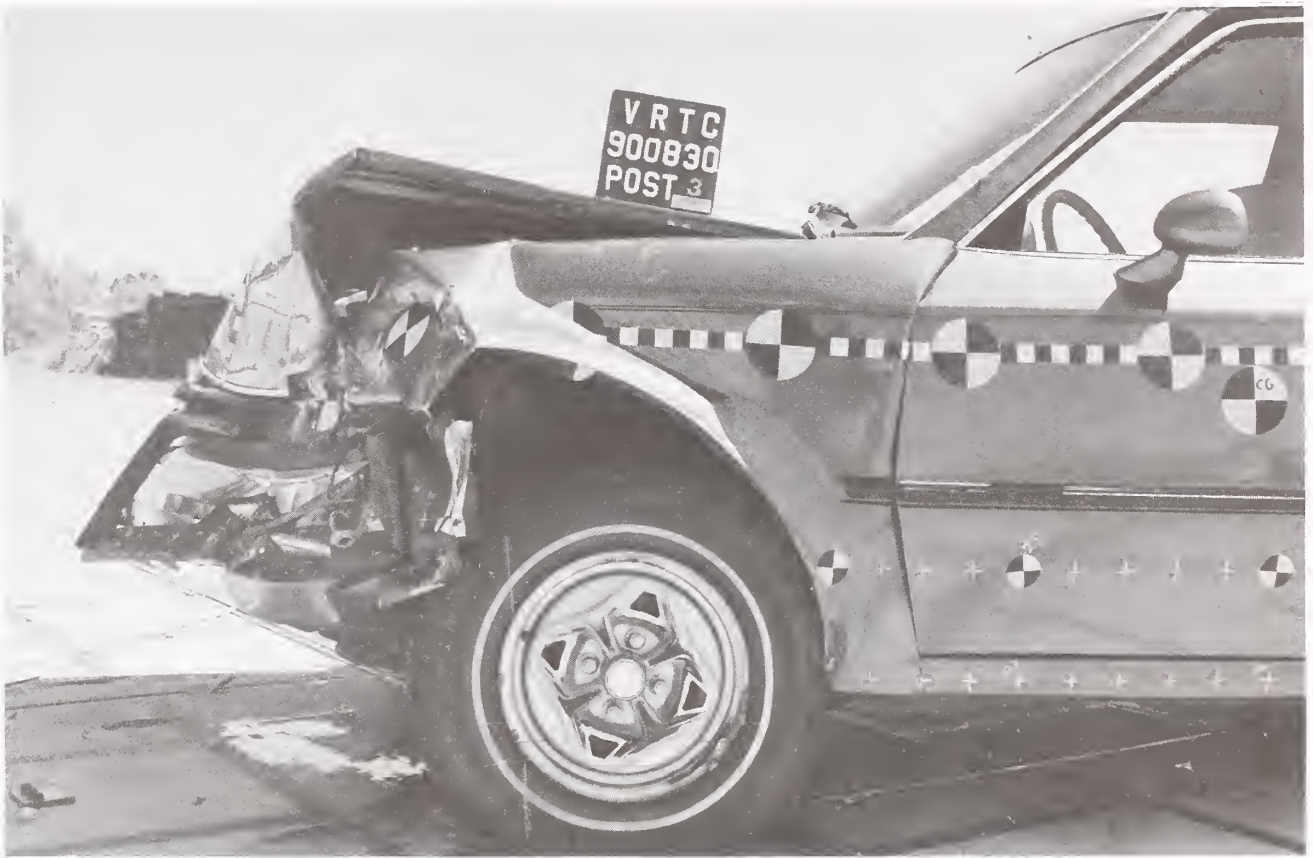


Figure A-3. POST-TEST LEFT SIDE CLOSE-UP VIEW



Figure A-4. POST-TEST RIGHT SIDE VIEW



Figure A-5. POST-TEST RIGHT SIDE CLOSE-UP VIEW



Figure A-6. POST-TEST REAR VIEW



Figure A-7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-8. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

TEST #900830-4
LIST OF PHOTOGRAPHS

1. POST-TEST FRONT VIEW
2. PRE-TEST LEFT SIDE VIEW
3. POST-TEST LEFT SIDE CLOSEUP VIEW
4. POST-TEST RIGHT SIDE VIEW
5. POST-TEST RIGHT SIDE CLOSEUP VIEW
6. POST-TEST REAR VIEW
7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
8. POST-TEST LEFT FRONT THREE-QUARTER VIEW
9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. PRE-TEST LEFT SIDE VIEW

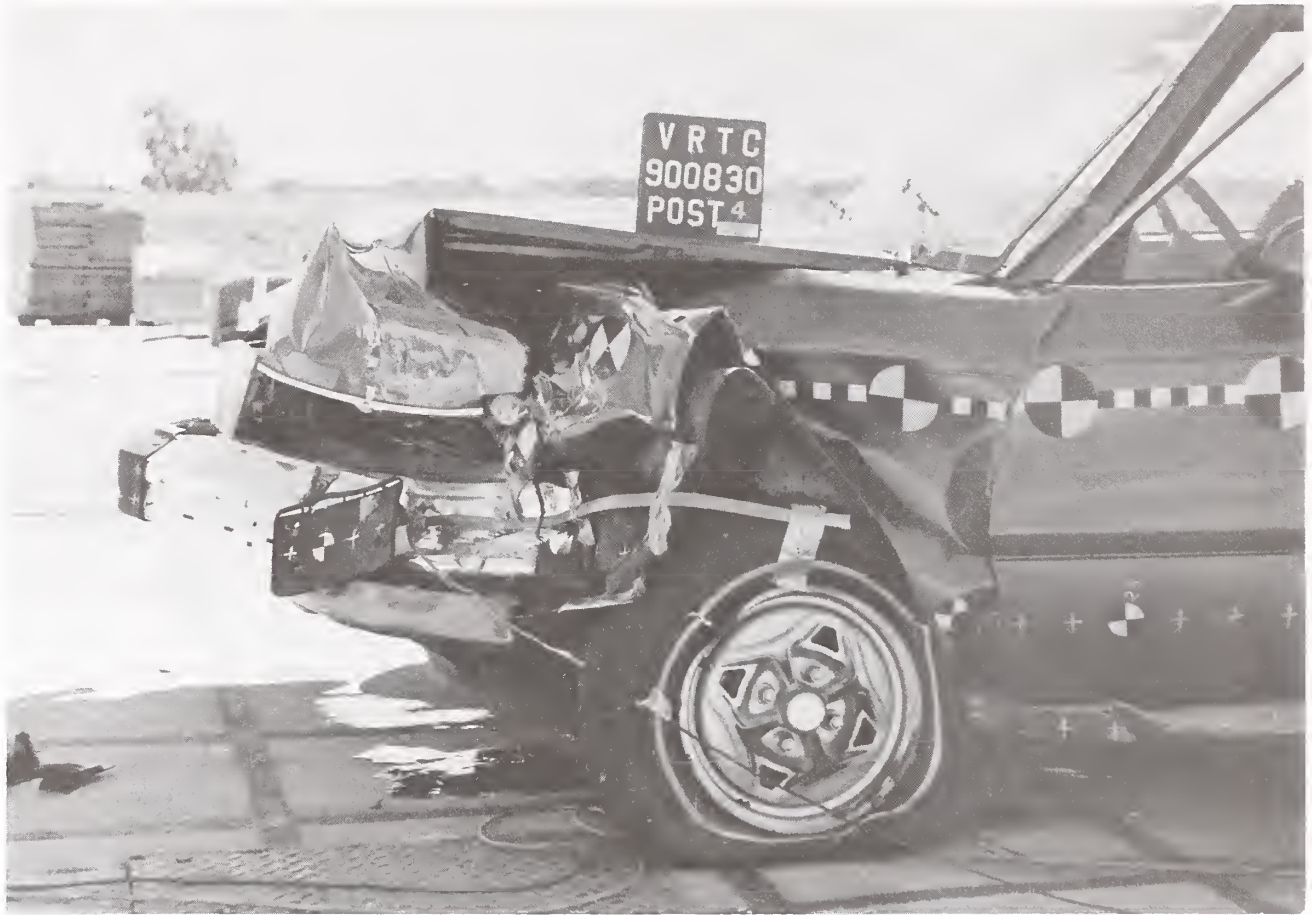


Figure A-3. POST-TEST LEFT SIDE CLOSE-UP VIEW





Figure A-5. POST-TEST RIGHT SIDE CLOSE-UP VIEW



Figure A-6. POST-TEST REAR VIEW



Figure A-7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-8. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

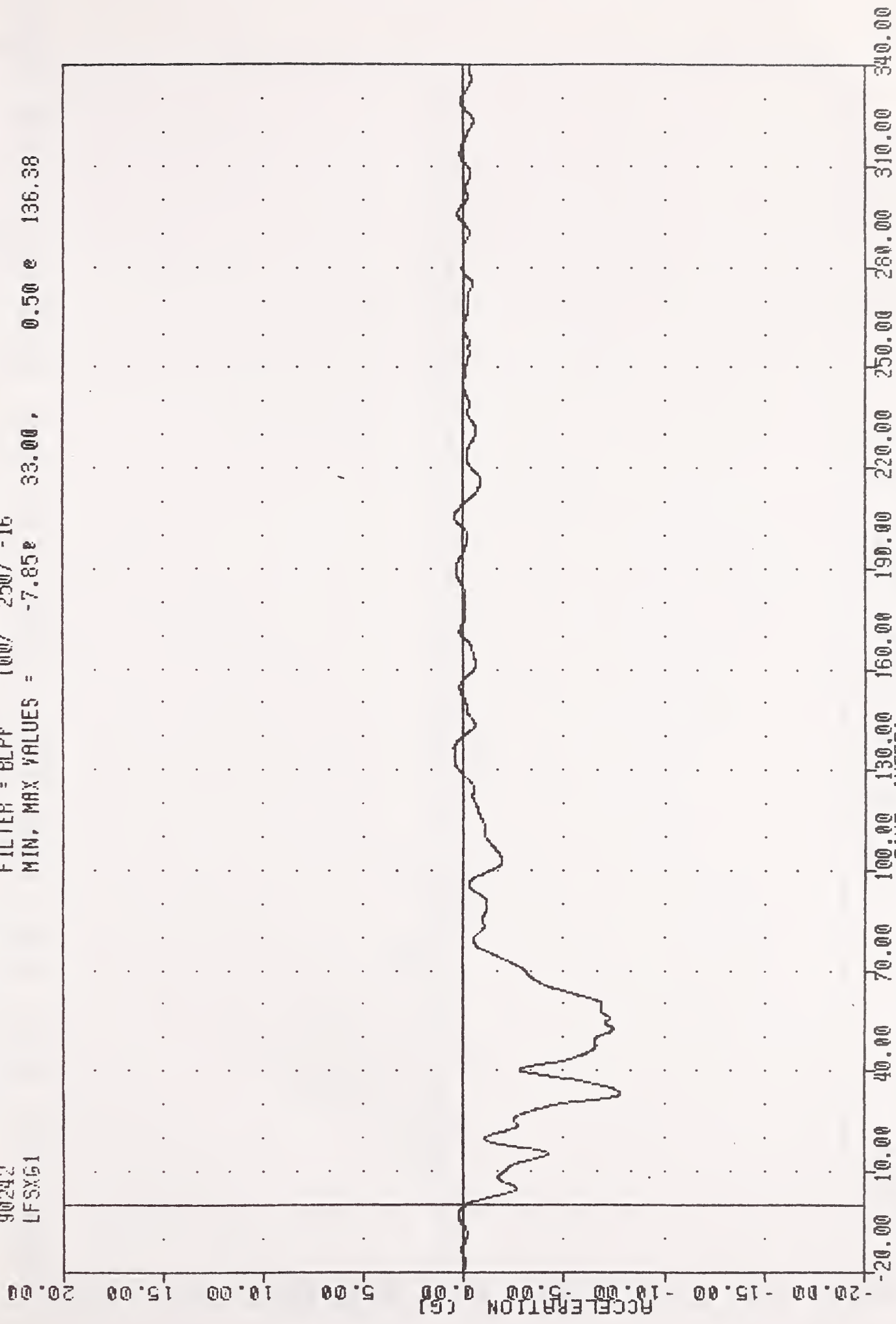
APPENDIX B

DATA PLOTS

TEST #900830-1

900630-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSXG1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -7.85e 33.00, 0.50 e 136.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 LEFT FRONT SILL X-AXIS ACCELERATION

900830-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSY61

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.54e 50.00, 2.29 e 101.88

20.00

15.00

10.00

5.00

0.00

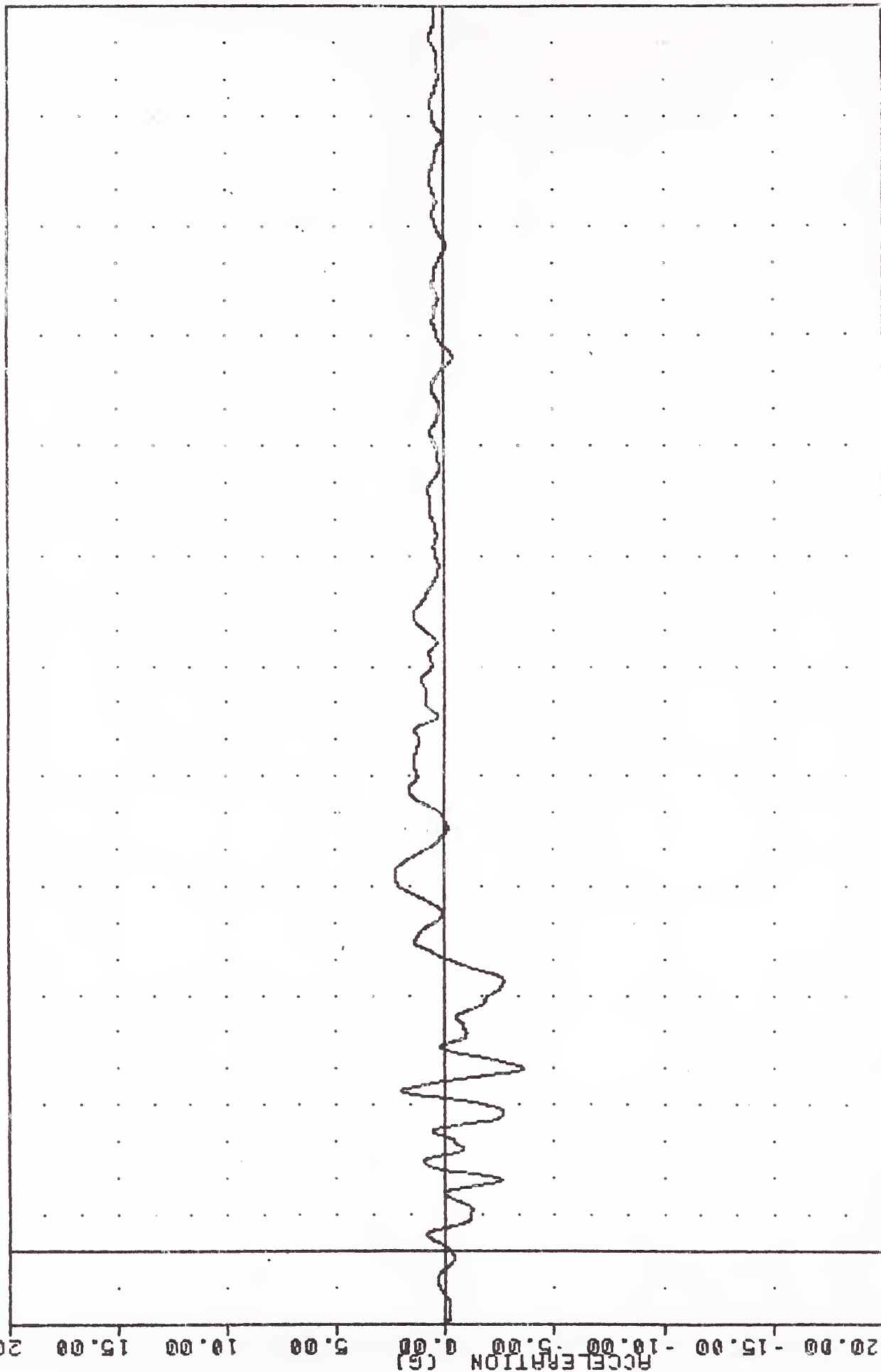
-5.00

-10.00

-15.00

-20.00

B4



-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

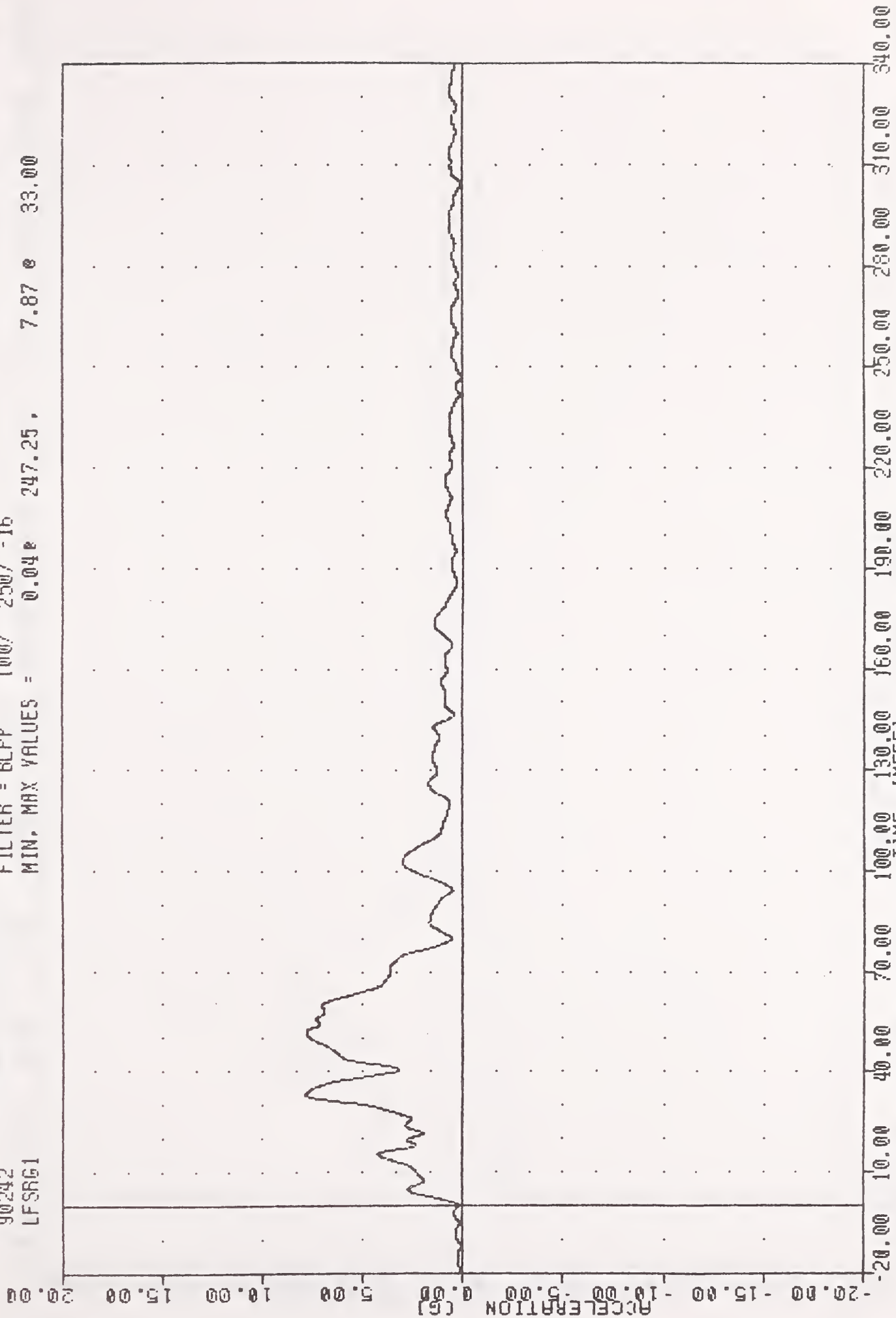
310.00

340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 LEFT FRONT SILL Y-AXIS ACCELERATION

900830-1, TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSRG1

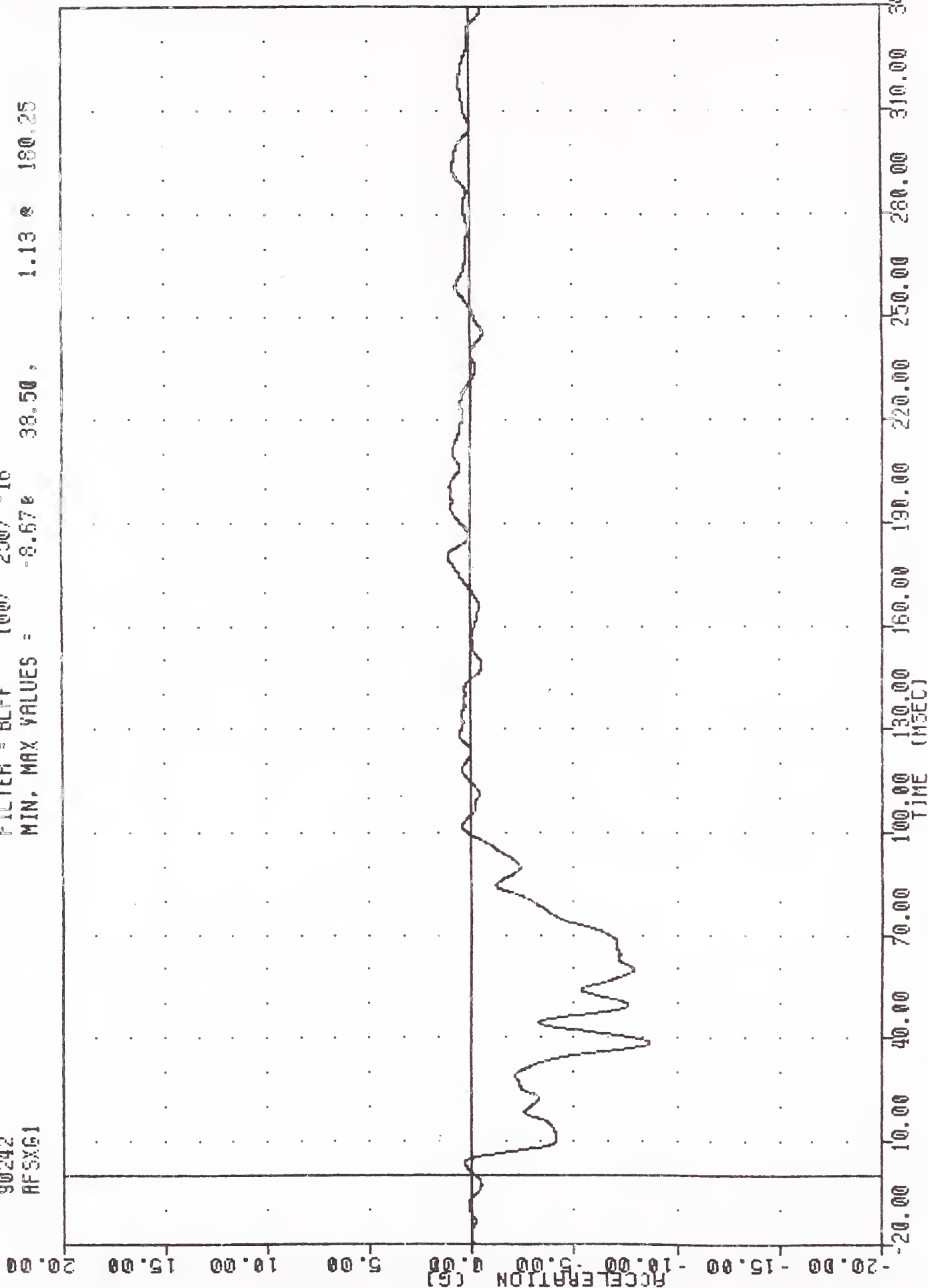
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.04e 247.25, 7.87 e 33.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 LEFT FRONT SILL RESULTANT ACCELERATION

900830-1 , TRC
CRASH III DAMAGE ALGORITHM
90242
AF5XG1

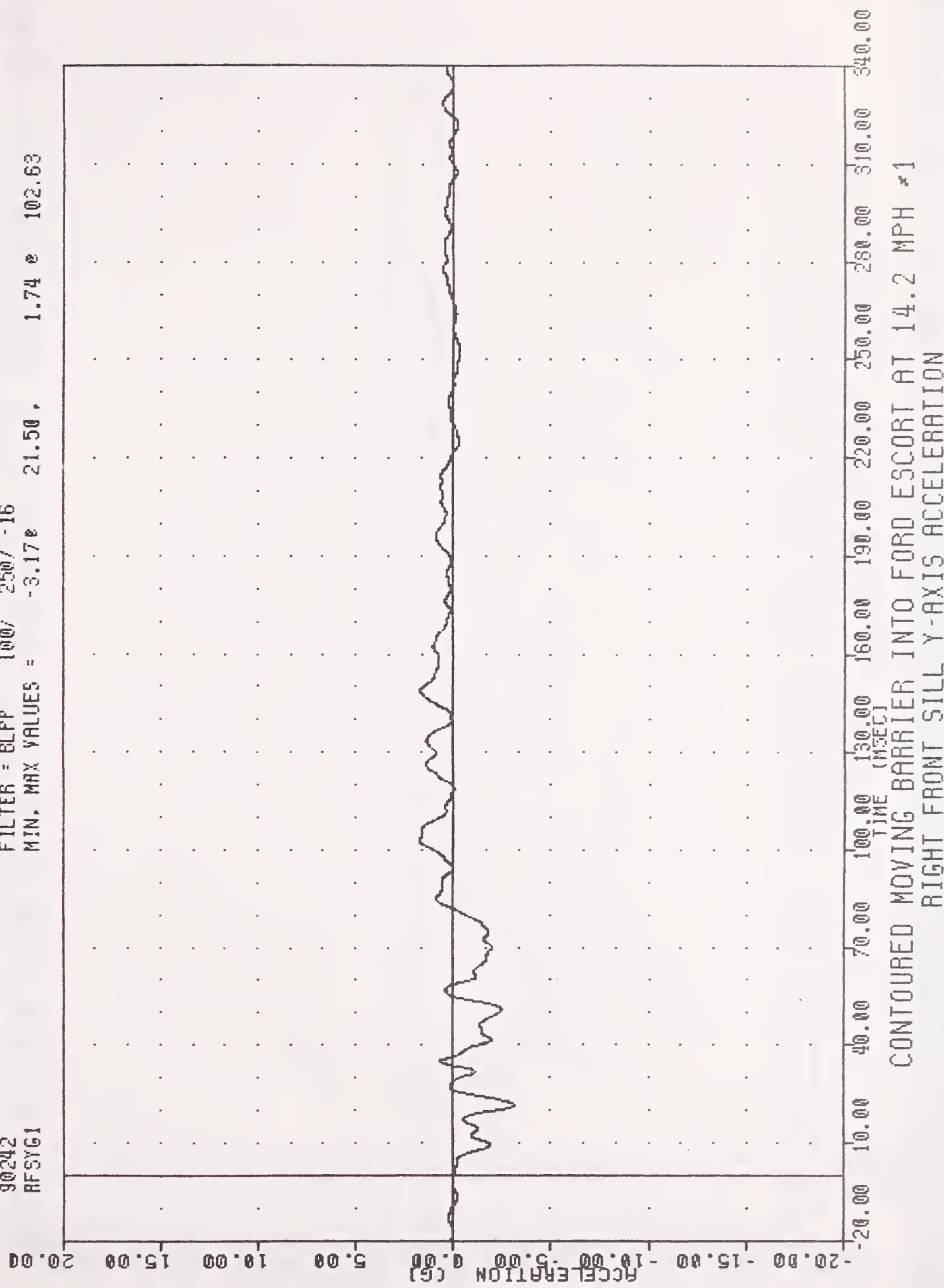
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -8.67e 38.50, 1.13 e 180.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
RIGHT FRONT SILL X-AXIS ACCELERATION

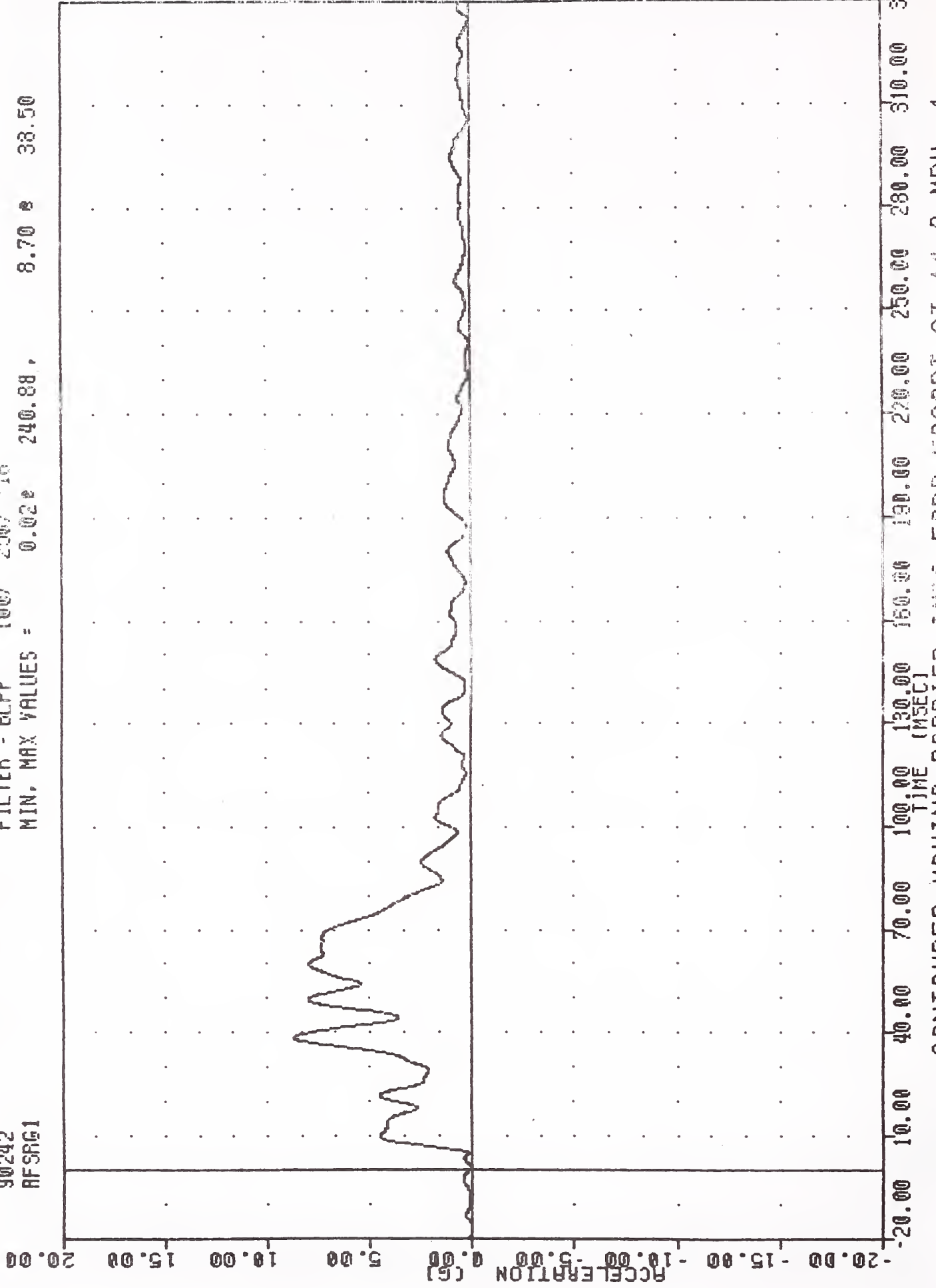
900830-1 , TAC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSYG1

FILTER = BLFP 100/ 250/ -16
 MIN. MAX VALUES = -3.17e 21.50, 1.74 e 102.63



900330-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSRG1

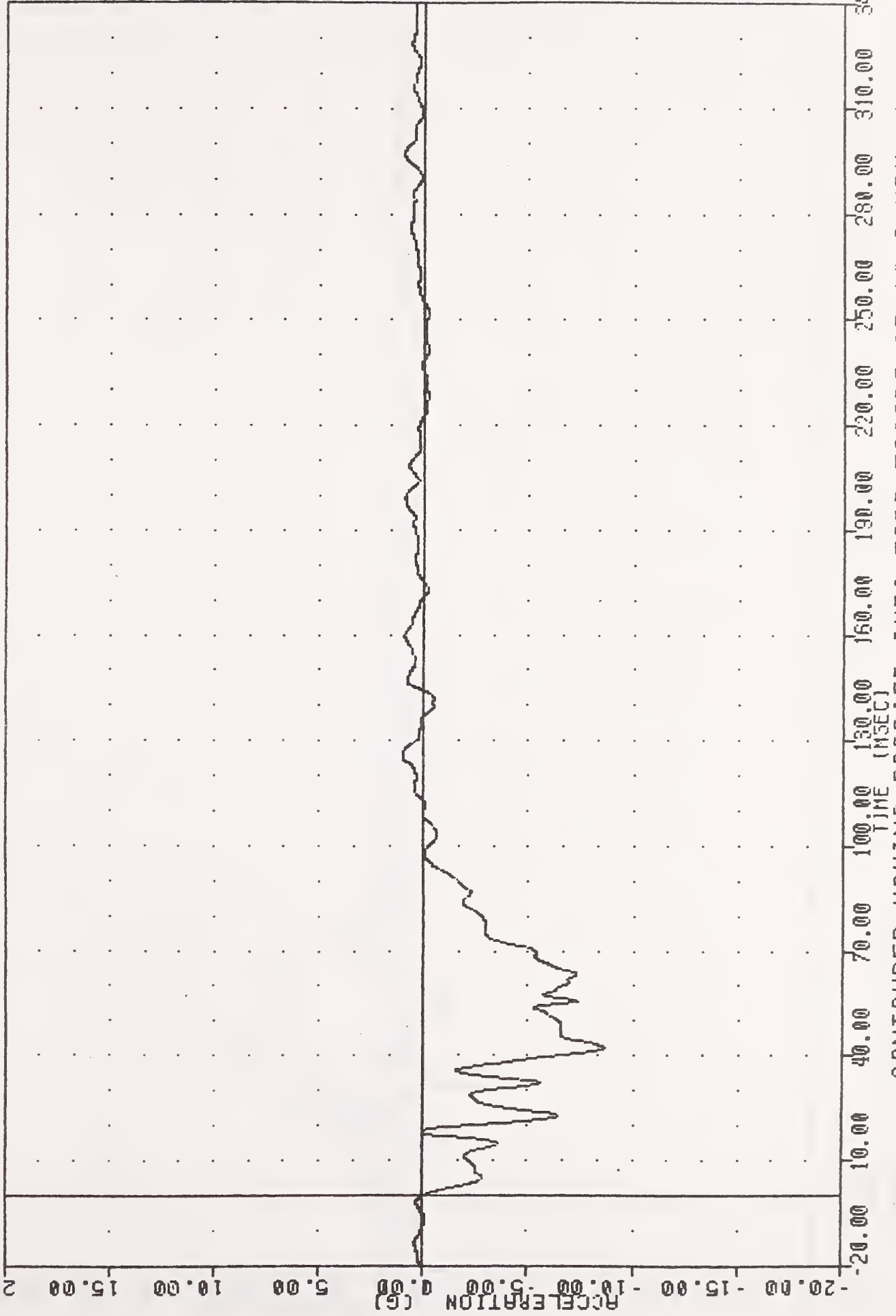
FILTER = BLPP 100/ 250/ 16
 MIN, MAX VALUES = 0.02 240.88 8.70 33.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 RIGHT FRONT SILL RESULTANT ACCELERATION

300830-1 , TRC
CRASH III DAMAGE ALGORITHM
90242
VCGXG1

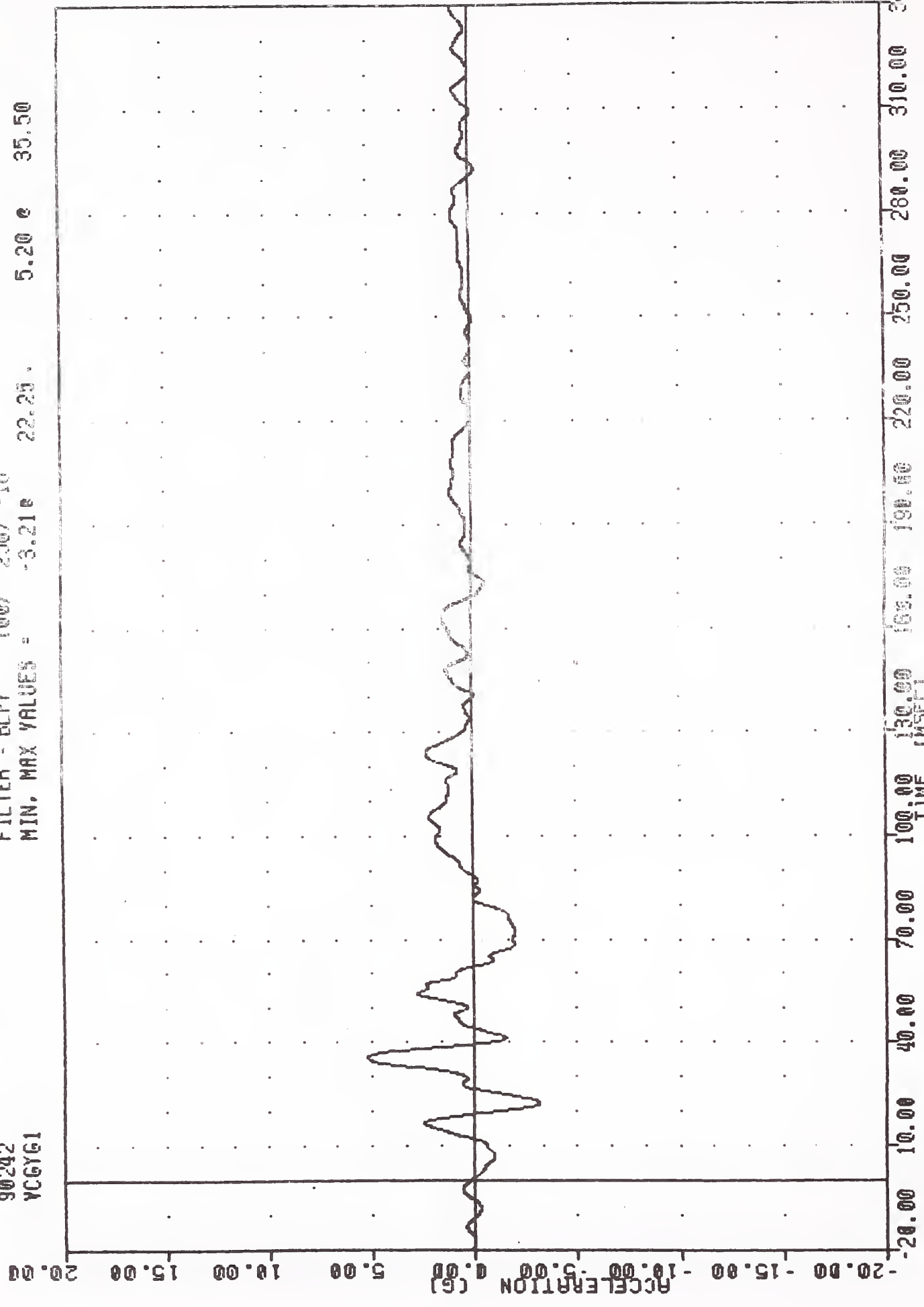
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -8.63e 42.13, 1.02 e 125.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH *1
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

900320-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 YCGY61

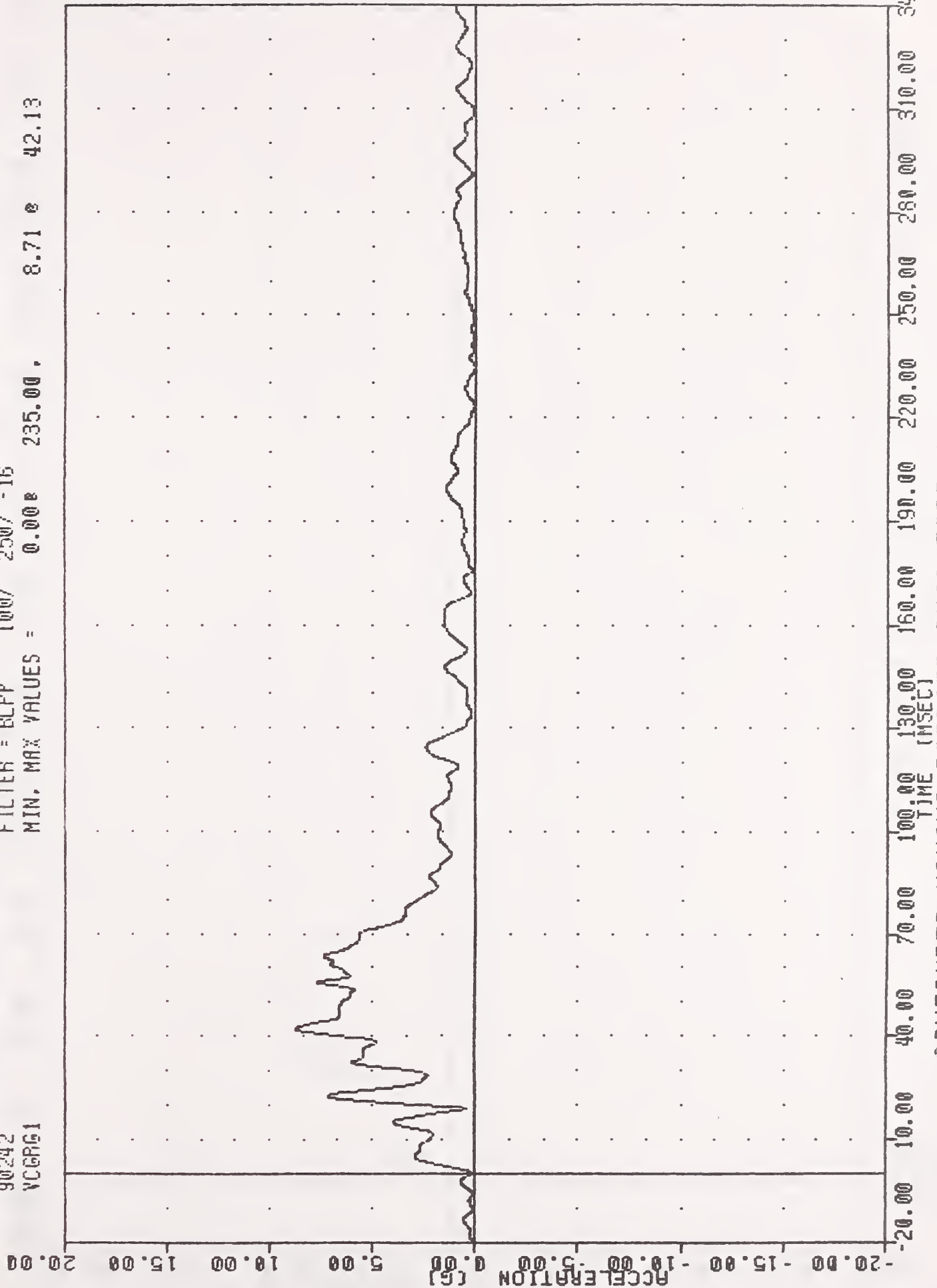
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -3.21e 22.25. 5.20 e 35.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

900030-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCERG1

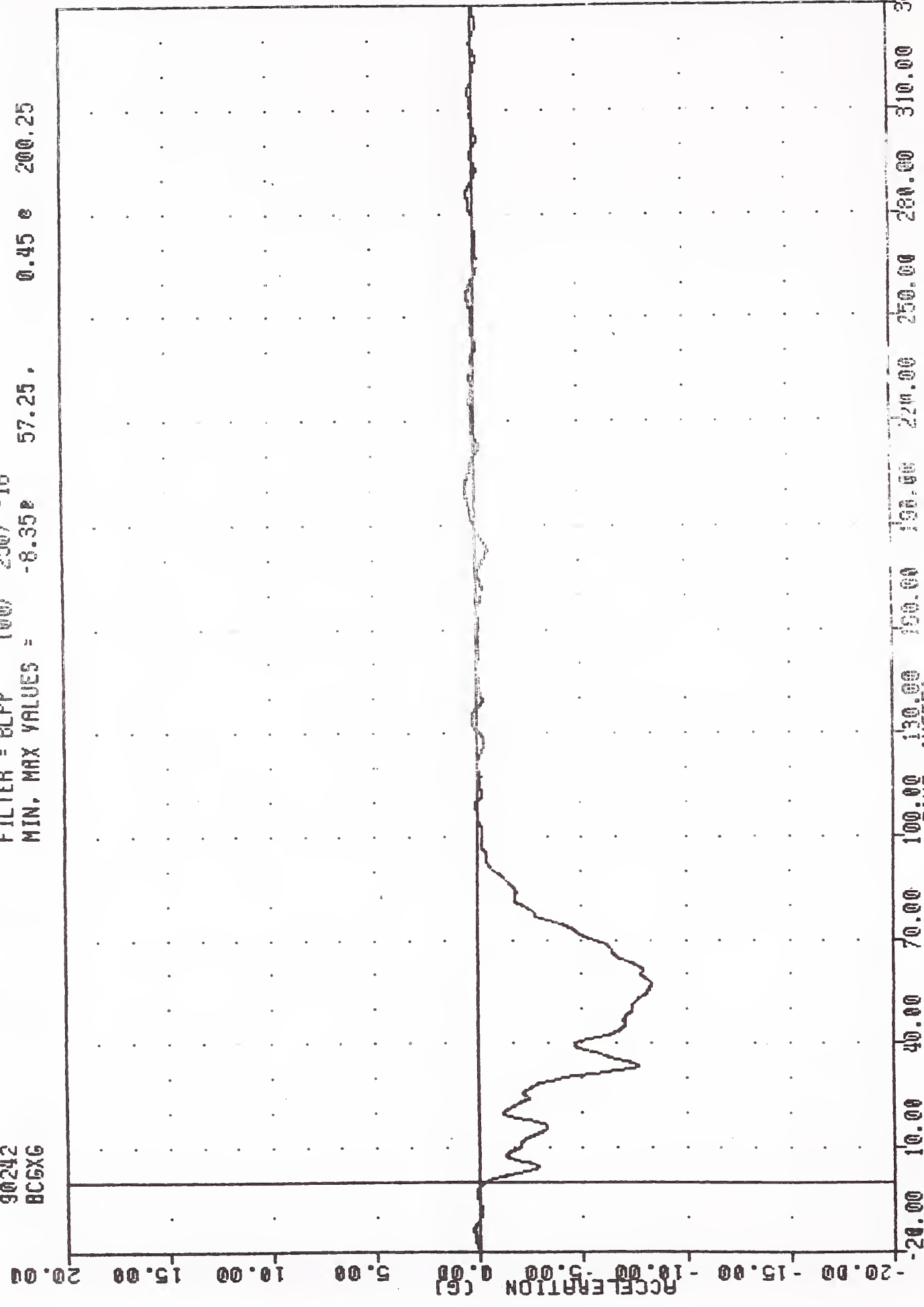
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.00 235.00, 8.71 42.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 VEHICLE CG RESULTANT ACCELERATION

900630-1 TBC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXG

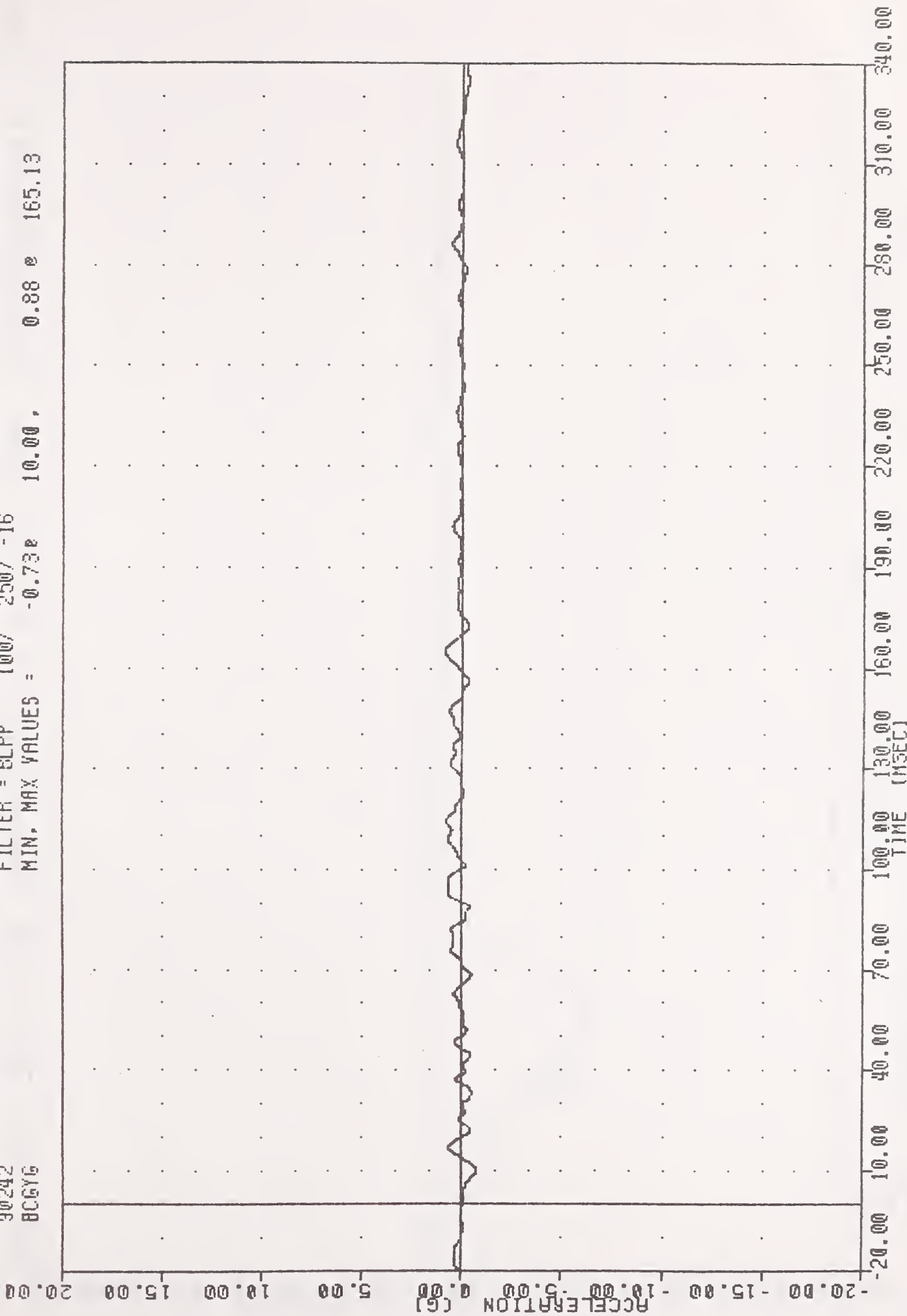
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -8.35 57.25 0.45 200.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH *1
 MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

900830-1, TRC
 CRASH III DAMAGE ALGORITHM
 30242
 BCCYG

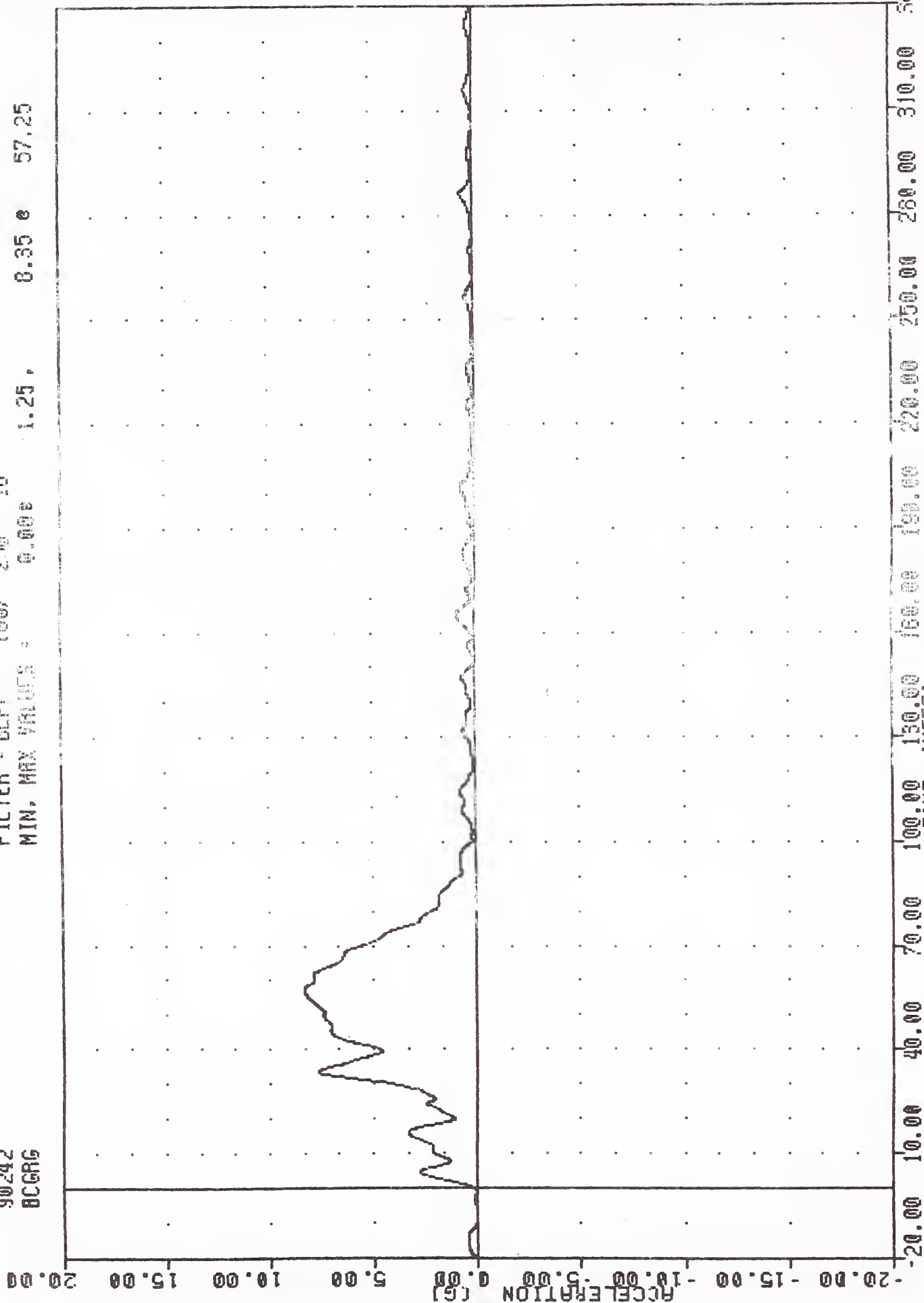
FILTER = ELPP 100/ 250/ -16
 MIN, MAX VALUES = -0.73e 10.00, 0.88 e 165.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900830-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRG

FILTER = BLPP 100/ 250 -16
 MIN. MAX VALUES = 0.00e 1.25. 0.35 e 57.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

300030-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -8.568 340.00 , 0.00 0.00

20.00

15.00

10.00

5.00

0.00

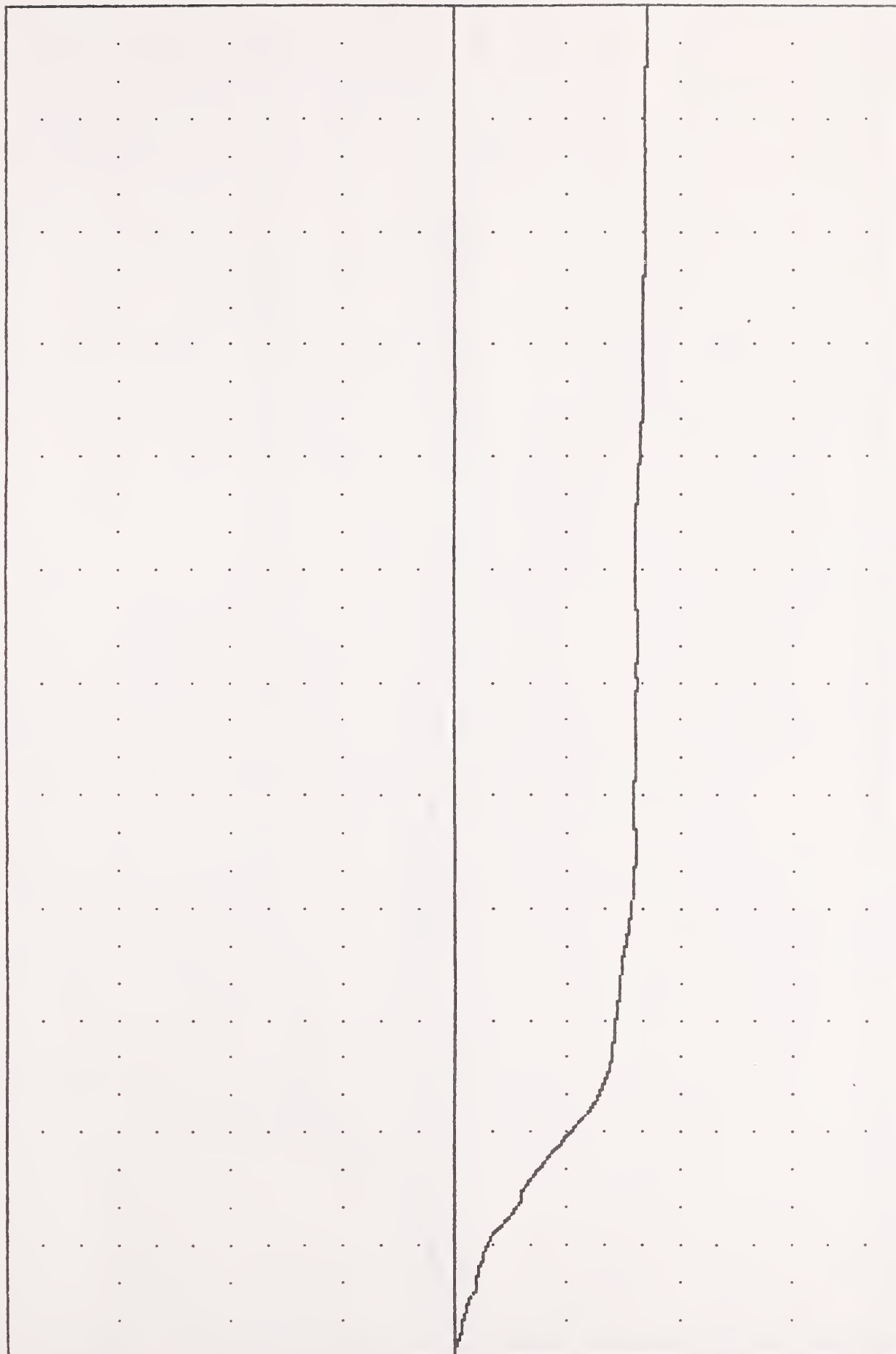
VELOCITY (MPH)

-5.00

-10.00

-15.00

-20.00



0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH ±1
 LEFT FRONT SILL X-AXIS VELOCITY

900830-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSYV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -1.55e 79.75, 2.04 e 340.00

20.00

15.00

10.00

5.00

0.00

VELOCITY (MPH)

-5.00

-10.00

-15.00

-20.00

0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

340.00

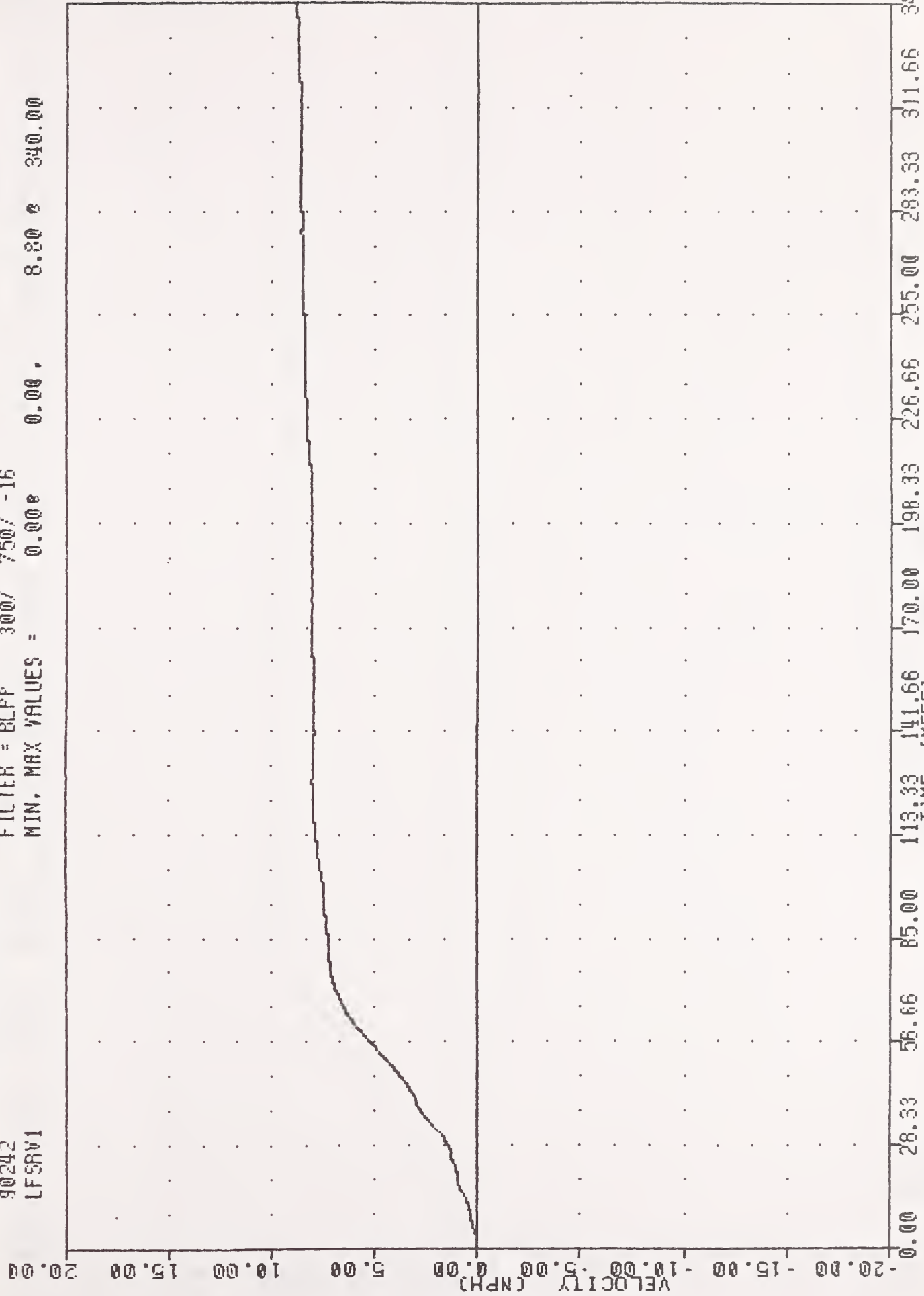
TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1

LEFT FRONT SILL Y-AXIS VELOCITY

900830-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSRV1

FILTER = BLFF 300/ 750/ -16
 MIN, MAX VALUES = 0.00, 8.80 340.00

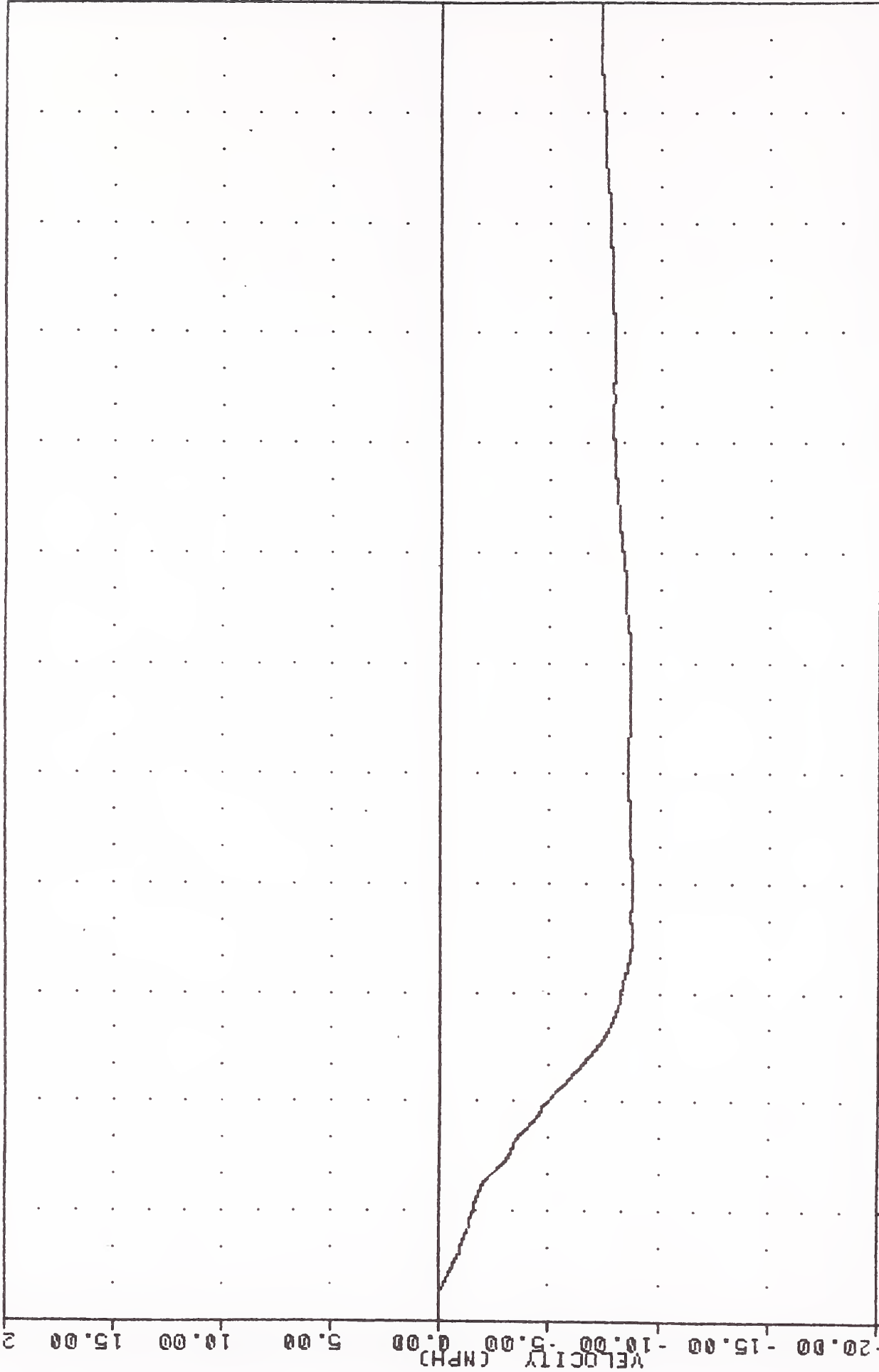


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 LEFT FRONT SILL RESULTANT VELOCITY

90032N-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -8.76e 113.38 , 0.03 e 6.00

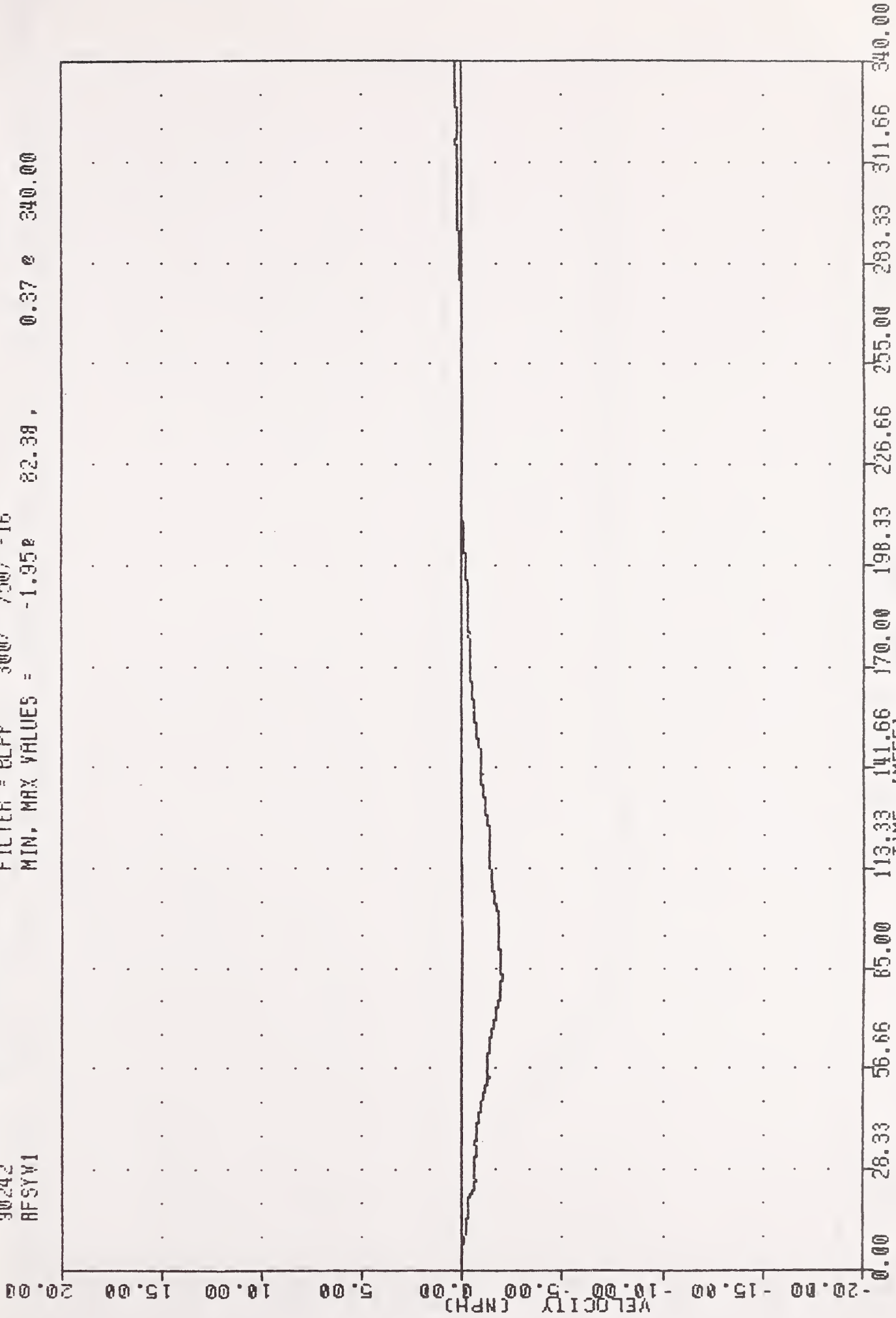
20.00
15.00
10.00
5.00
0.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 RIGHT FRONT SILL X-AXIS VELOCITY

900030-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSYV1

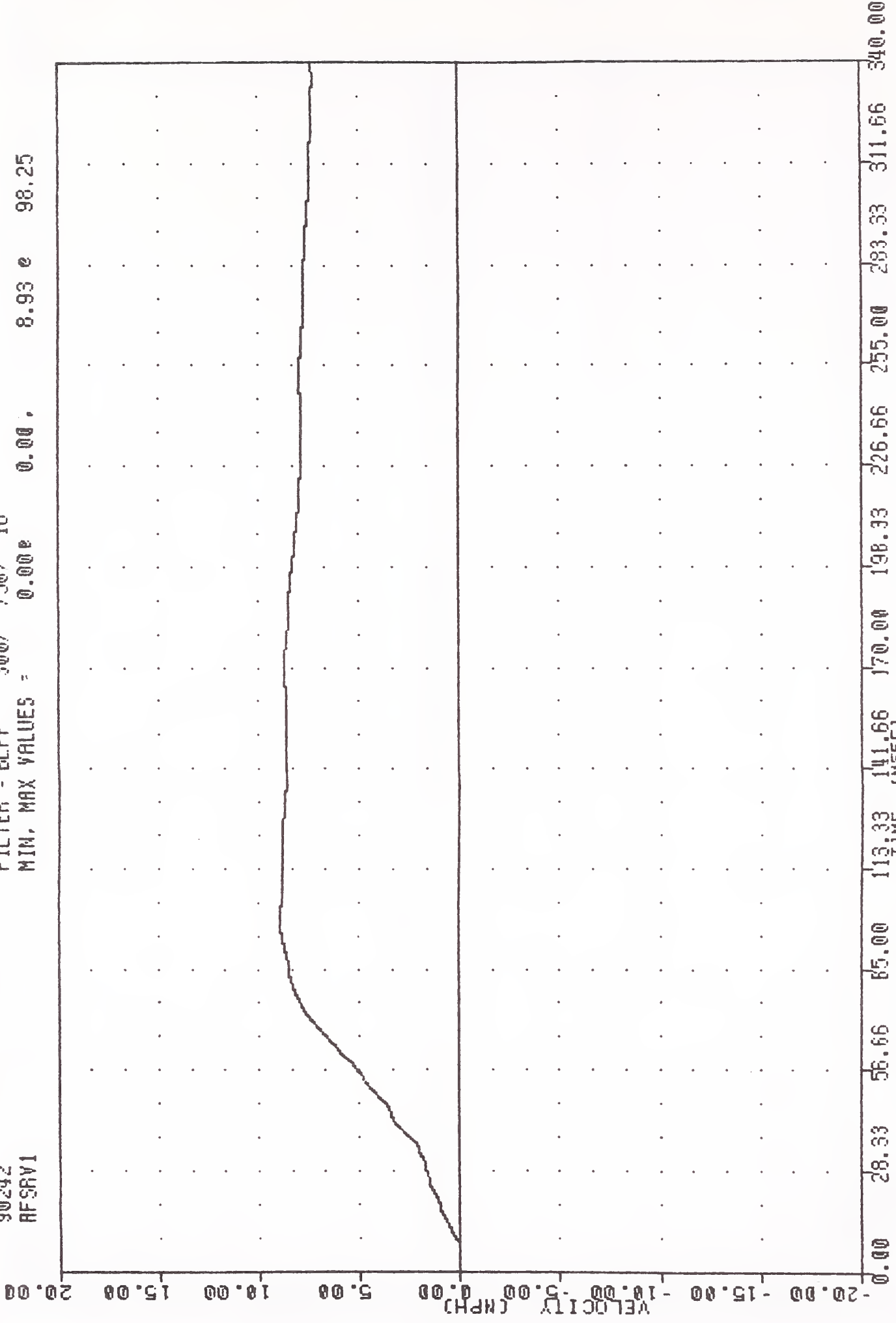
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -1.95e 82.38, 0.37 e 340.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 RIGHT FRONT SILL Y-AXIS VELOCITY

900330-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSRV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.000 0.000 8.93 e 98.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 RIGHT FRONT SILL RESULTANT VELOCITY

900000-1 TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGXV1

FILTER = BLFP 300/ 750/ -16
 MIN, MAX VALUES = -8.30e 113.75, 0.00 e 0.00

20.00

15.00

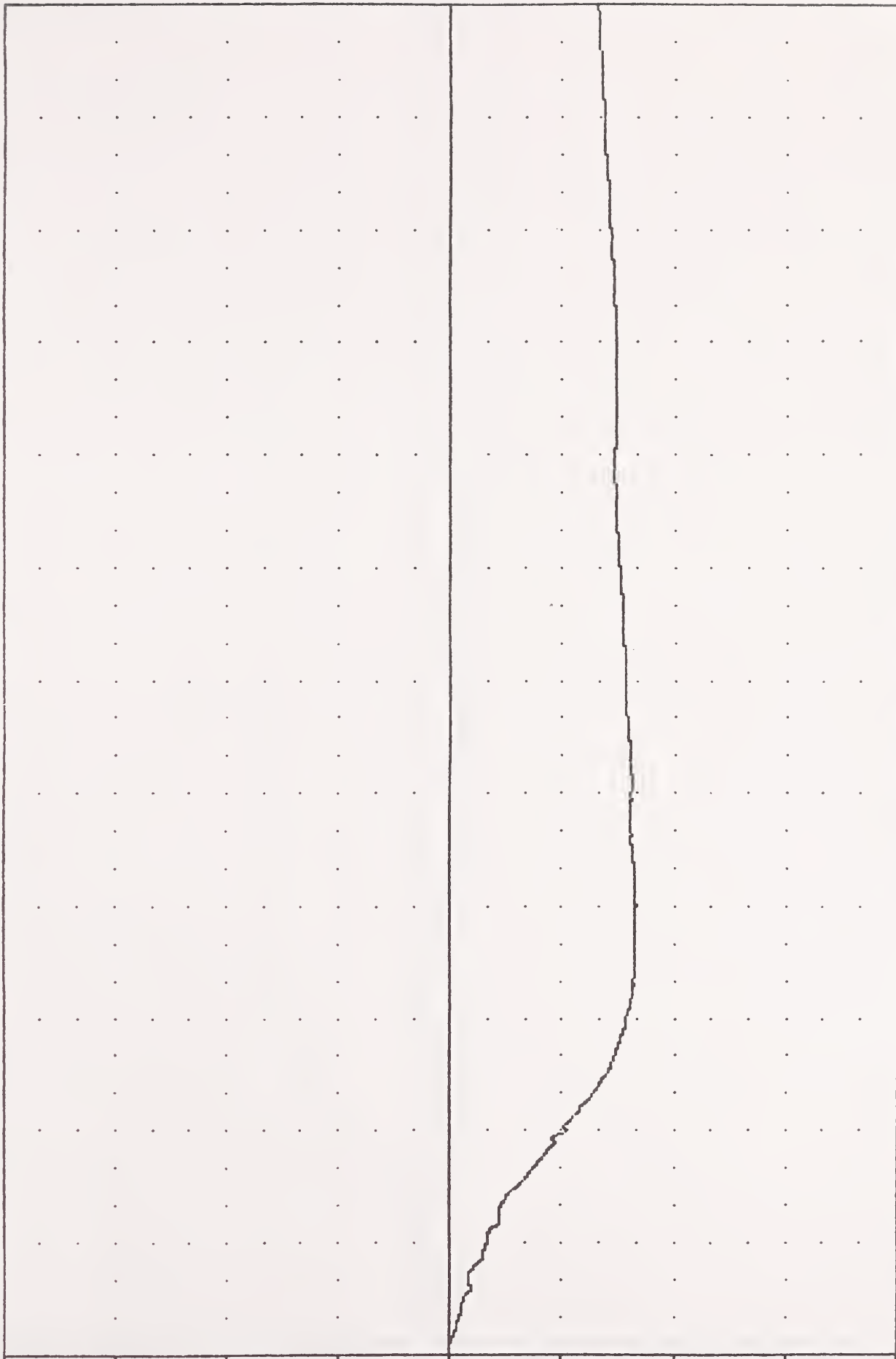
10.00

5.00

0.00

B21

VELOCITY (MPH)



0.00

25.00

50.00

75.00

100.00

125.00

150.00

175.00

200.00

225.00

250.00

275.00

300.00

325.00

340.00

CONToured MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH *1
 VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900330-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGYV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -0.25e 25.75, 3.57 e 340.00

20.00

15.00

10.00

5.00

0.00

VELOCITY (NPH)

-5.00

-10.00

-15.00

-20.00

0.00

5.00

10.00

15.00

20.00

113.33 141.66
 TIME (MSEC)

170.00

198.33

226.66

255.00

283.33

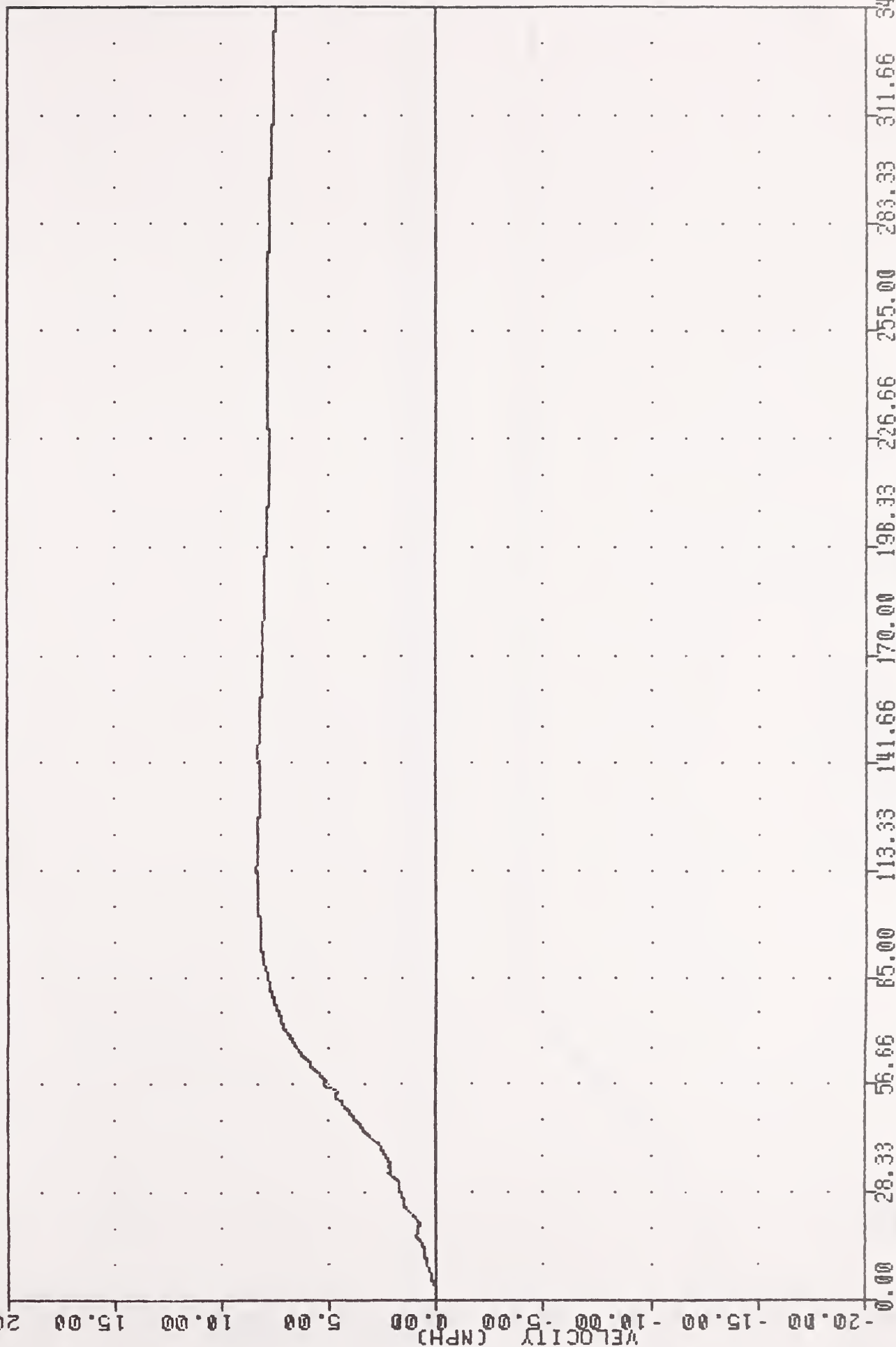
311.66

340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

900833-1
 CRASH III DAMAGE ALGORITHM
 90242
 VCGRV1

FILTER = BLPF 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00, 8.36 e 113.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 VEHICLE CG RESULTANT VELOCITY

900630-1 .TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXY

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 5.33 190.75, 14.20 0.00

20.00

15.00

10.00

5.00

0.00

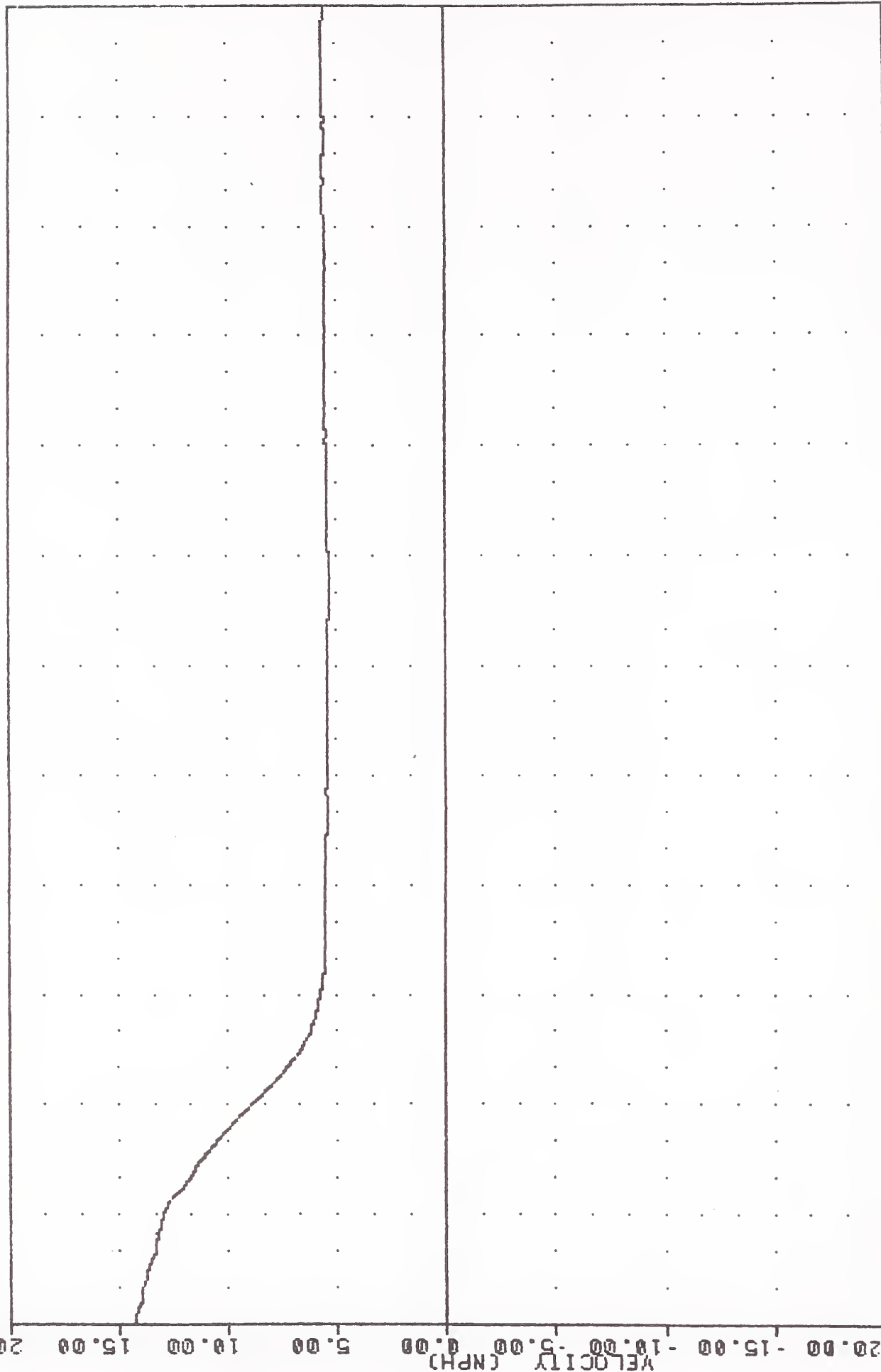
-5.00

-10.00

-15.00

-20.00

B24



0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

900930-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGYV

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -0.160 45.50 , 0.92 324.63

20.00

15.00

10.00

5.00

0.00

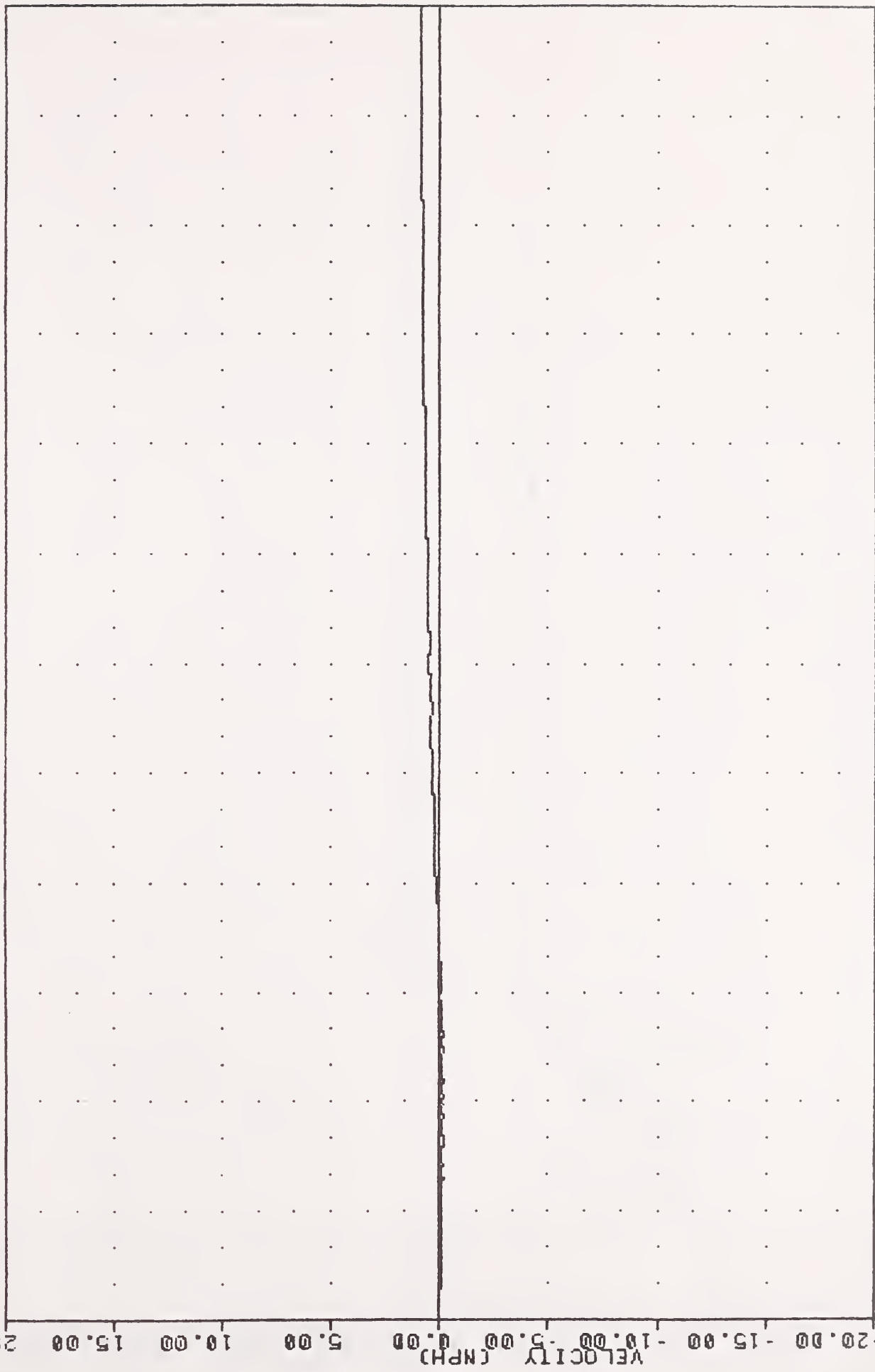
-5.00

-10.00

-15.00

-20.00

B25



0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

340.00

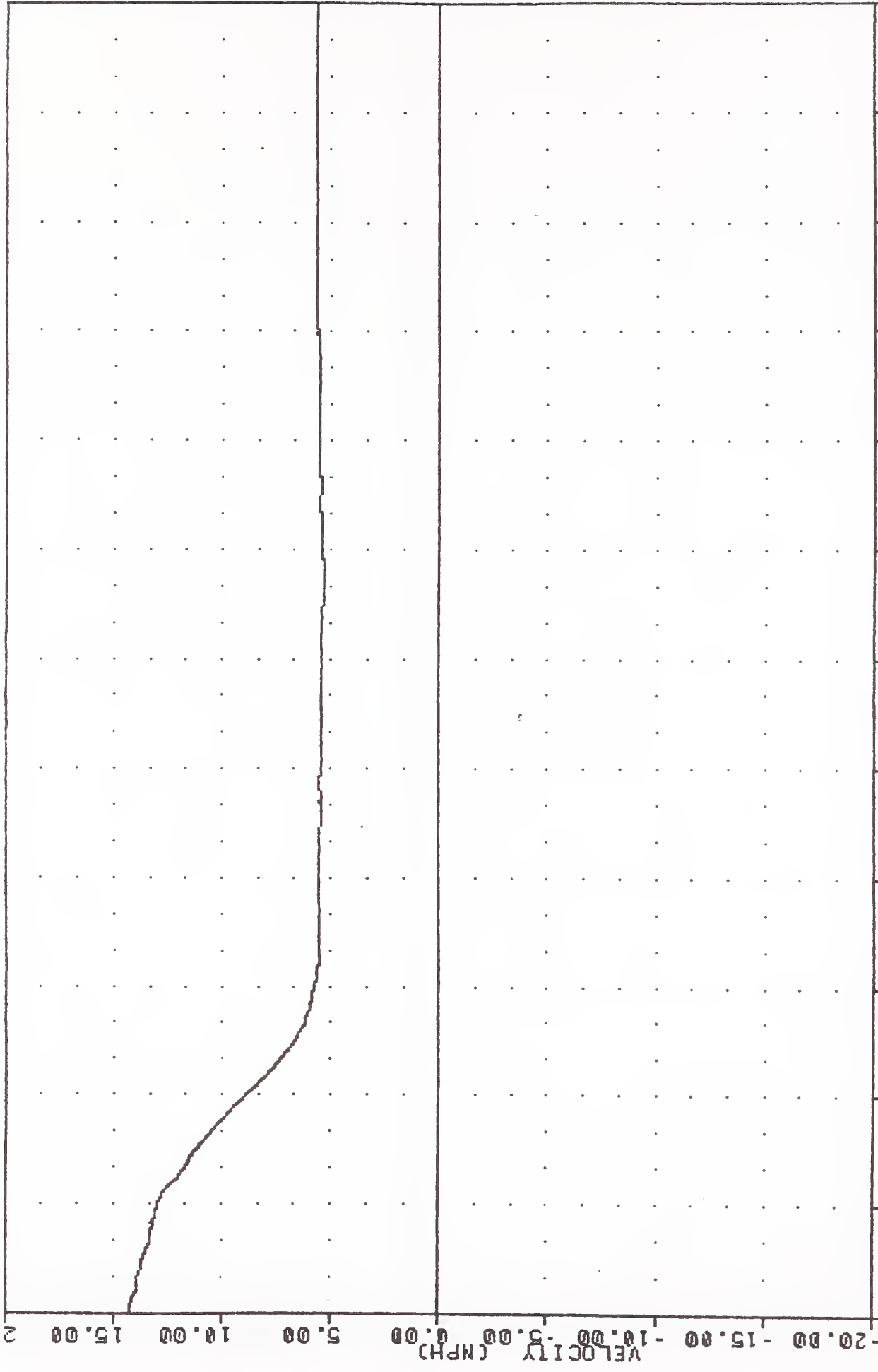
TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

900030-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRY

FILTER = BLFP 300/ 750/ -16
 MIN, MAX VALUES = 5.35e 190.75. 14.20 e 0.00

20.00
15.00
10.00
5.00
0.00



0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 14.2 MPH #1
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

900030-2 . . . TRC

CRASH III DAMAGE ALGORITHM

90242

LFSXG1

FILTER = BLPF 100/ 250/ -16

MIN, MAX VALUES = -14.38 53.38, 2.98 80.50

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

ACCELERATION (G)

-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

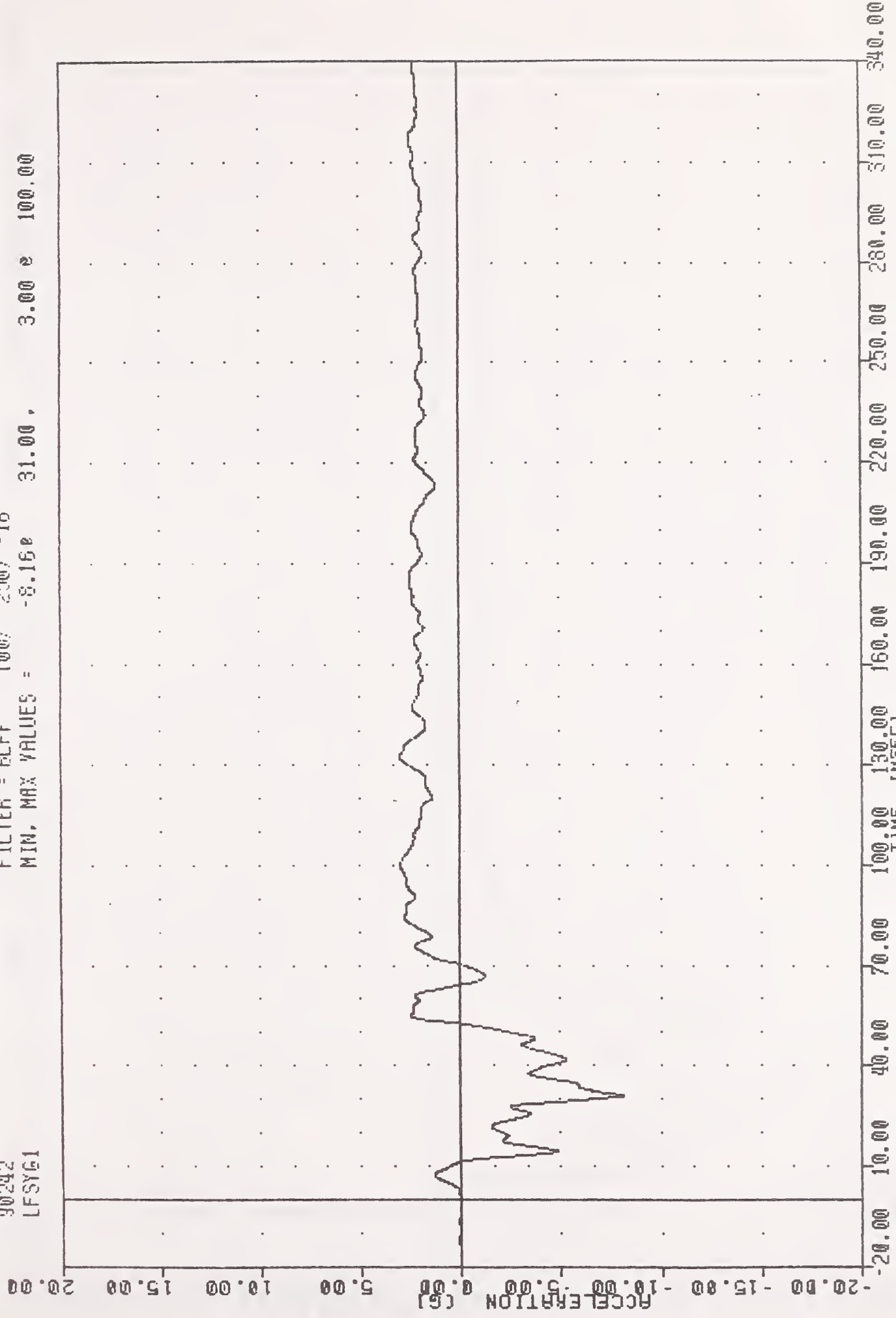
TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
LEFT FRONT SILL X-AXIS ACCELERATION

TEST #900830-2

300930-2 , TBC
 CRASH III DAMAGE ALGORITHM
 30242
 LFSY61

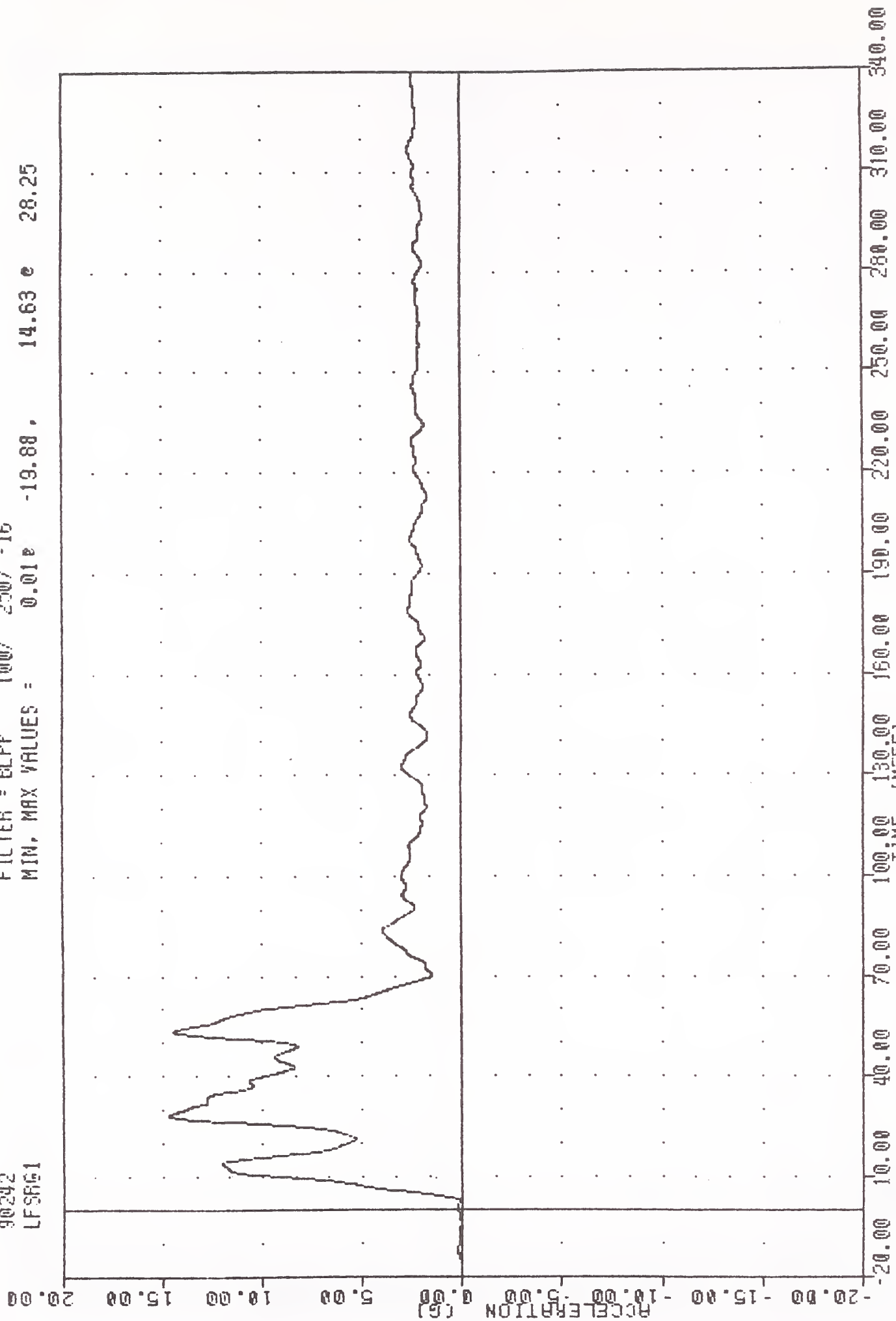
FILTER = RLFP 100/ 250/ -16
 MIN. MAX VALUES = -8.16e 31.00 , 3.00 e 100.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 LEFT FRONT SILL Y-AXIS ACCELERATION

900030-2 , TRC
CRASH III DAMAGE ALGORITHM
90242
LFSR61

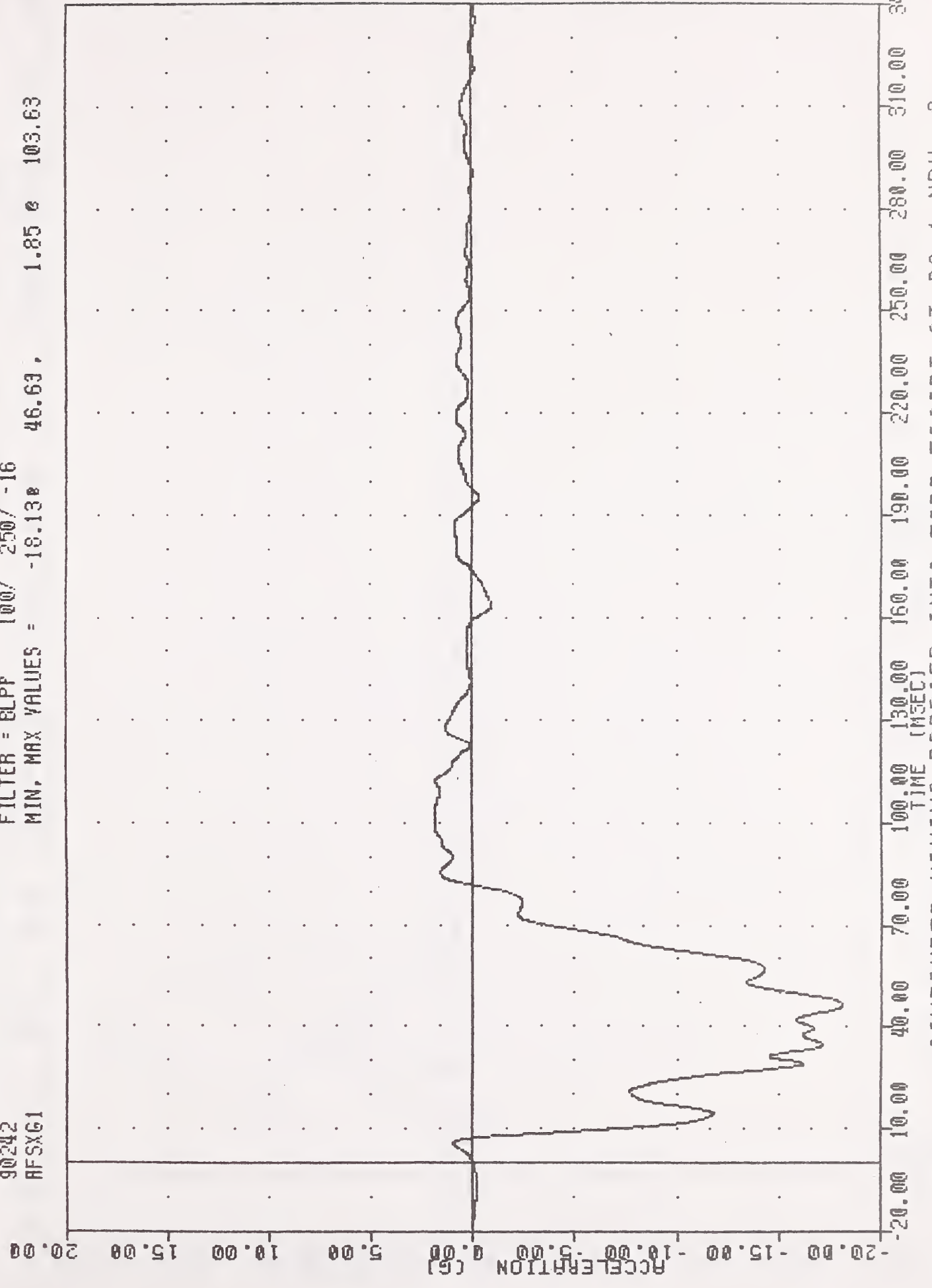
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = 0.01e -19.88, 14.63 e 28.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
LEFT FRONT SILL RESULTANT ACCELERATION

900830-2 TAC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSXG1

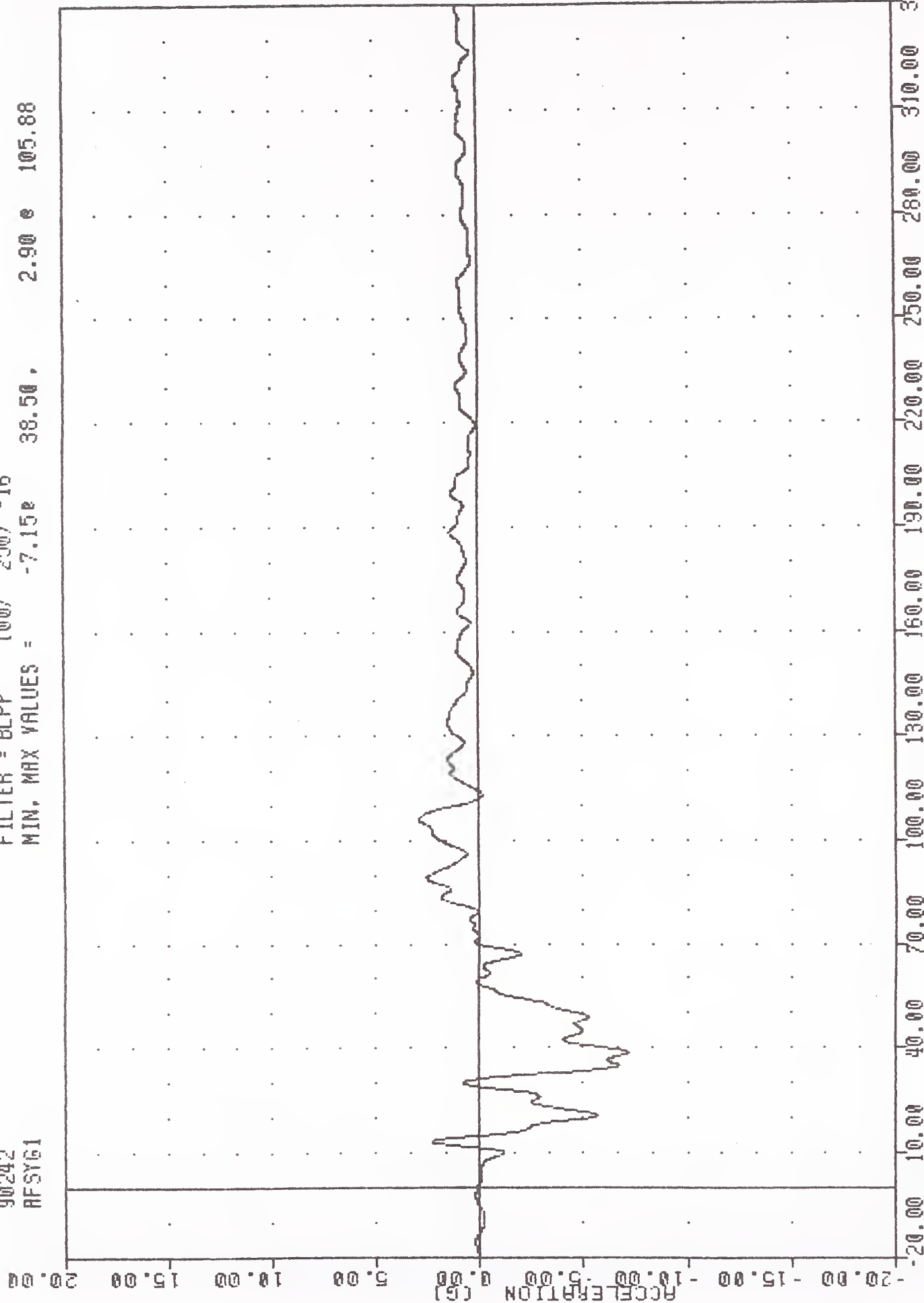
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -18.13 46.63 1.85 103.63



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 RIGHT FRONT SILL X-AXIS ACCELERATION

900830-2 .TRC
CRASH III DAMAGE ALGORITHM
90242
RFSYG1

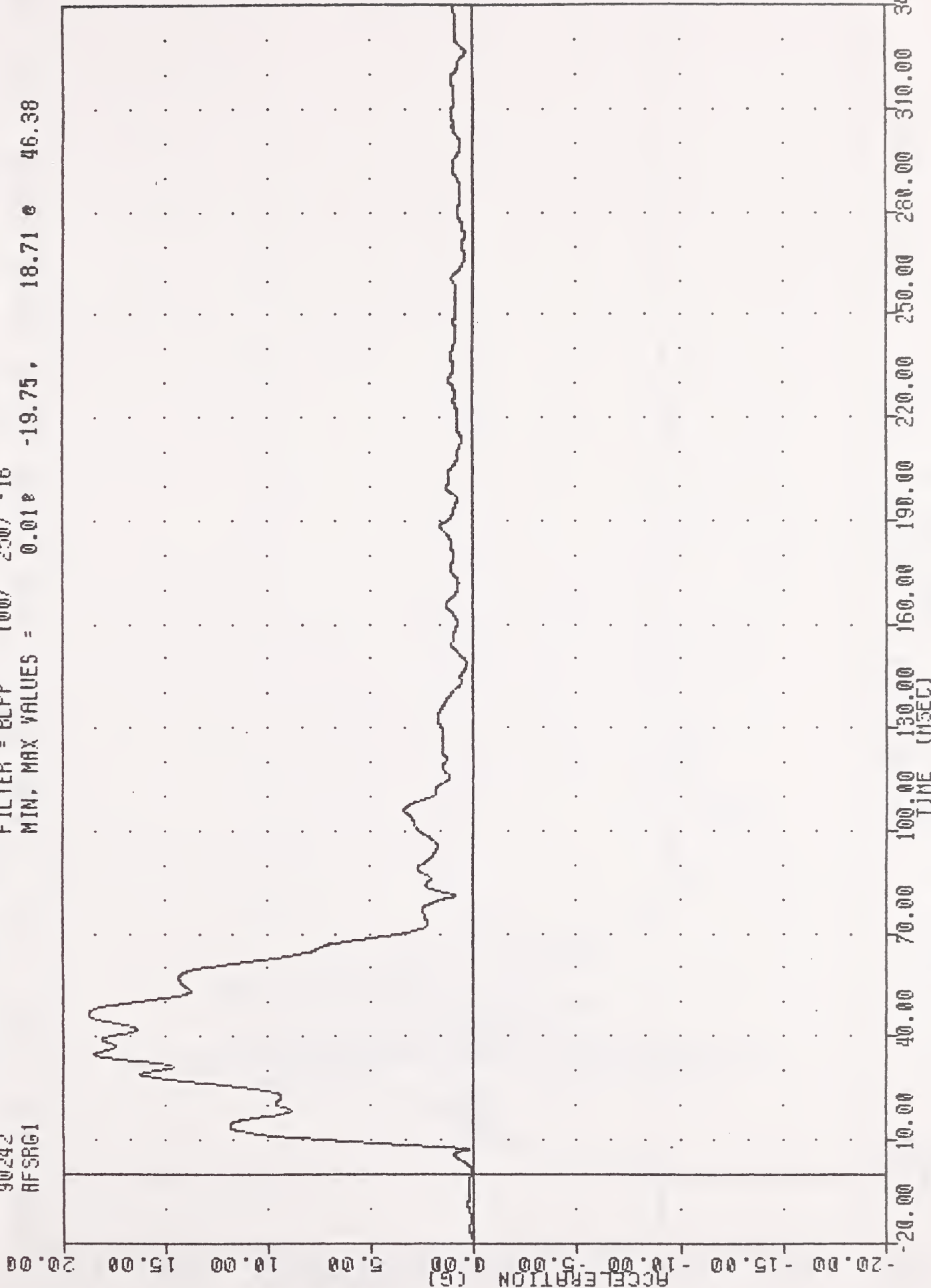
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -7.15e 38.50 , 2.90 e 105.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
RIGHT FRONT SILL Y-AXIS ACCELERATION

900830-2 TRC
CRASH III DAMAGE ALGORITHM
90242
RFSRG1

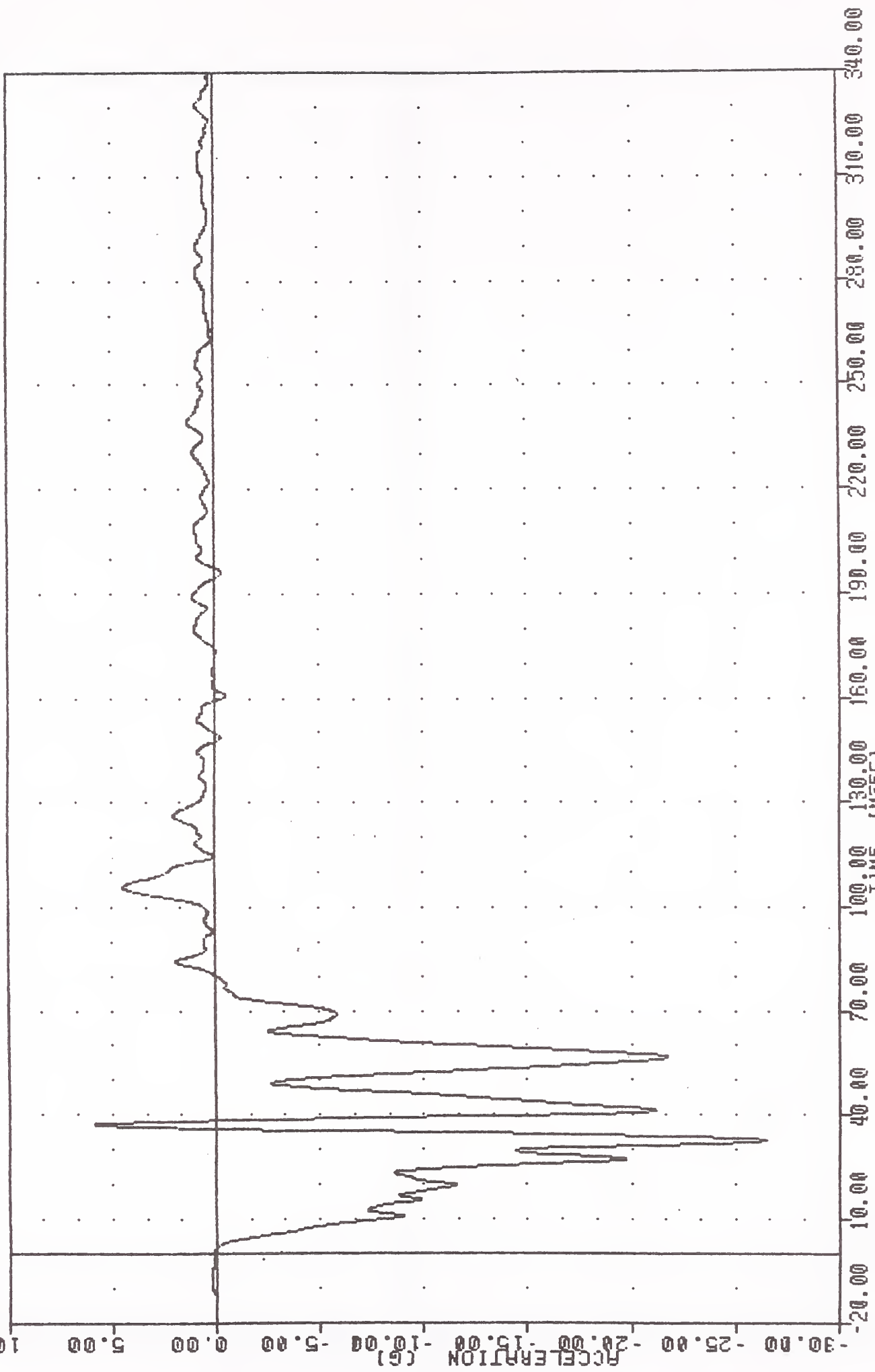
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.01e -19.75, 18.71 e 46.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
RIGHT FRONT SILL RESULTANT ACCELERATION

900830-2 , TRC
CRASH III DAMAGE ALGORITHM
90242
VCGXG1

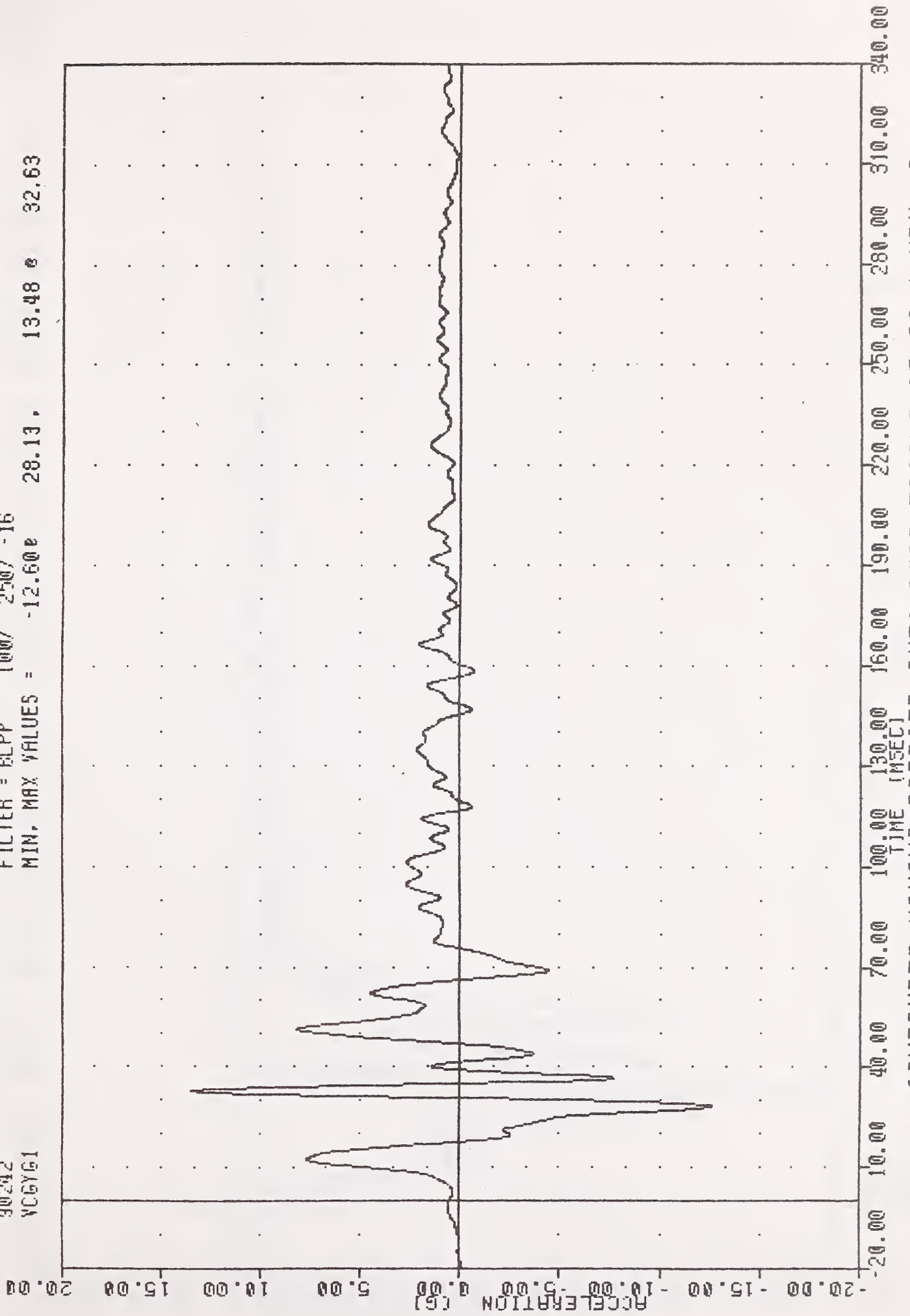
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -26.56 32.75, 5.81 37.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

900830-2
 CRASH III DAMAGE ALGORITHM
 90242
 VCGY61

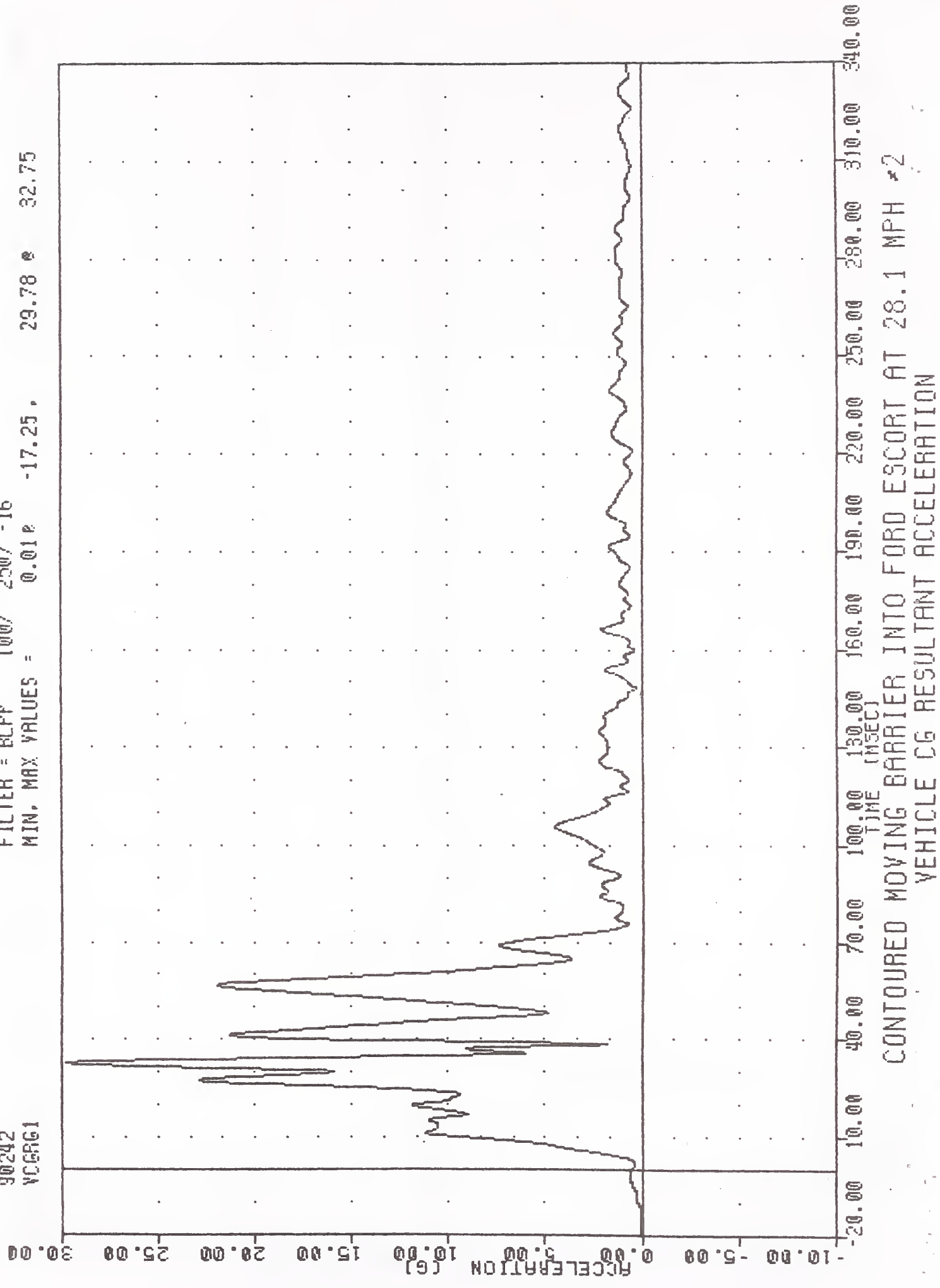
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -12.60e 28.13. 13.48 e 32.63



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

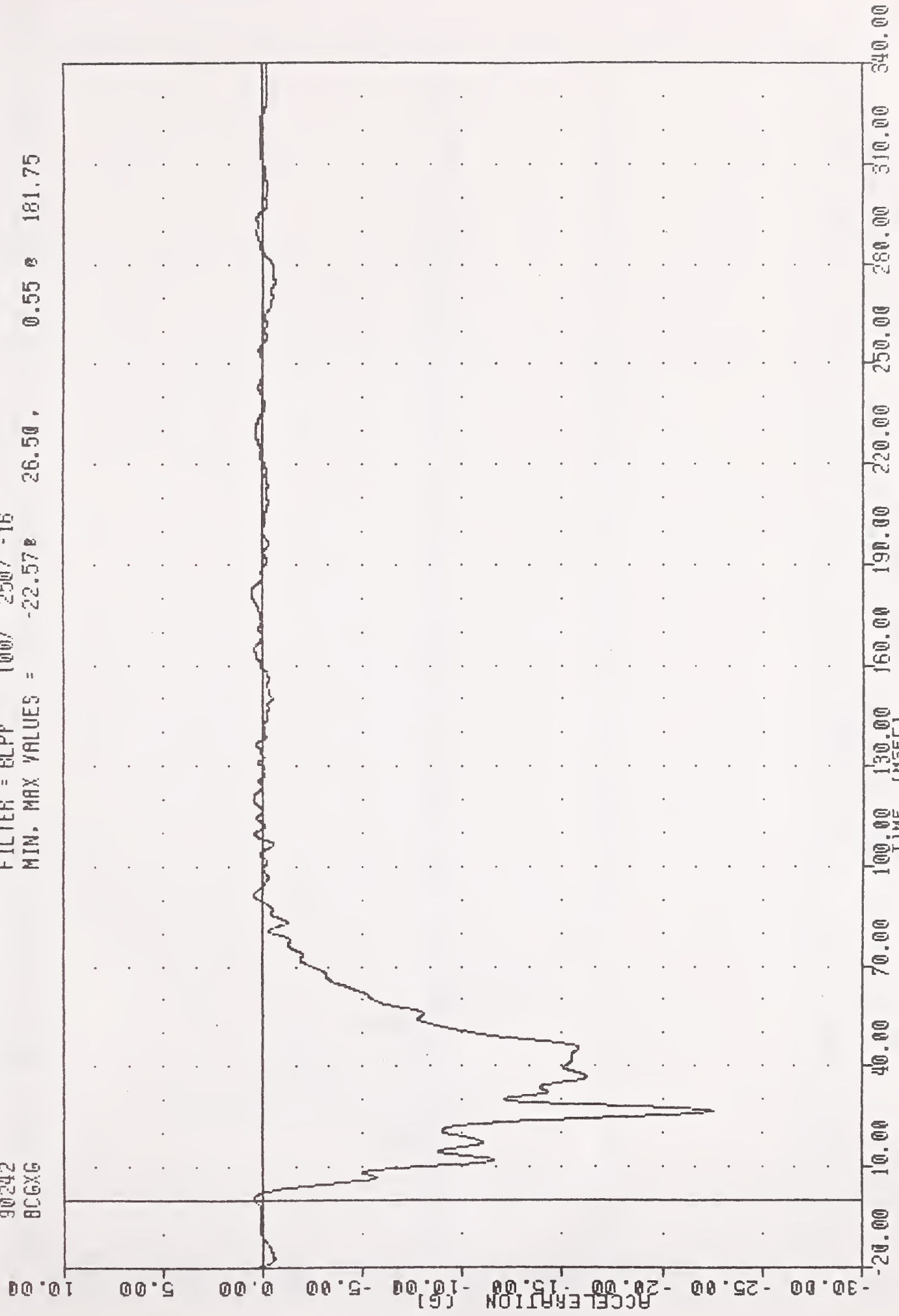
900830-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VC6RG1

FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = 0.012 -17.25, 29.78 32.75



900820-2, TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXG

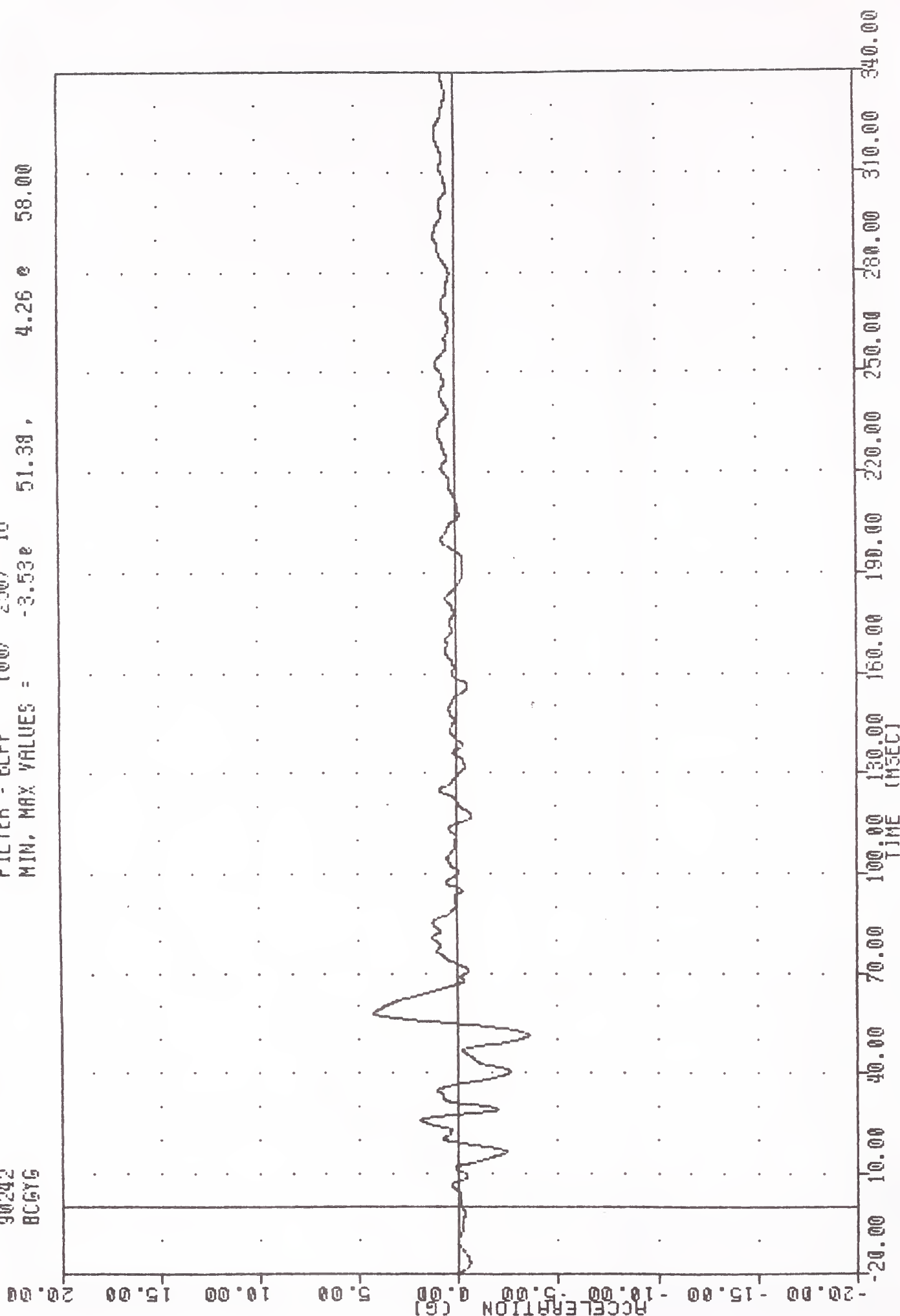
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -22.57 26.50 , 0.55 181.75



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

900830-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCCYG

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.53e 51.39 , 4.26 e 58.00

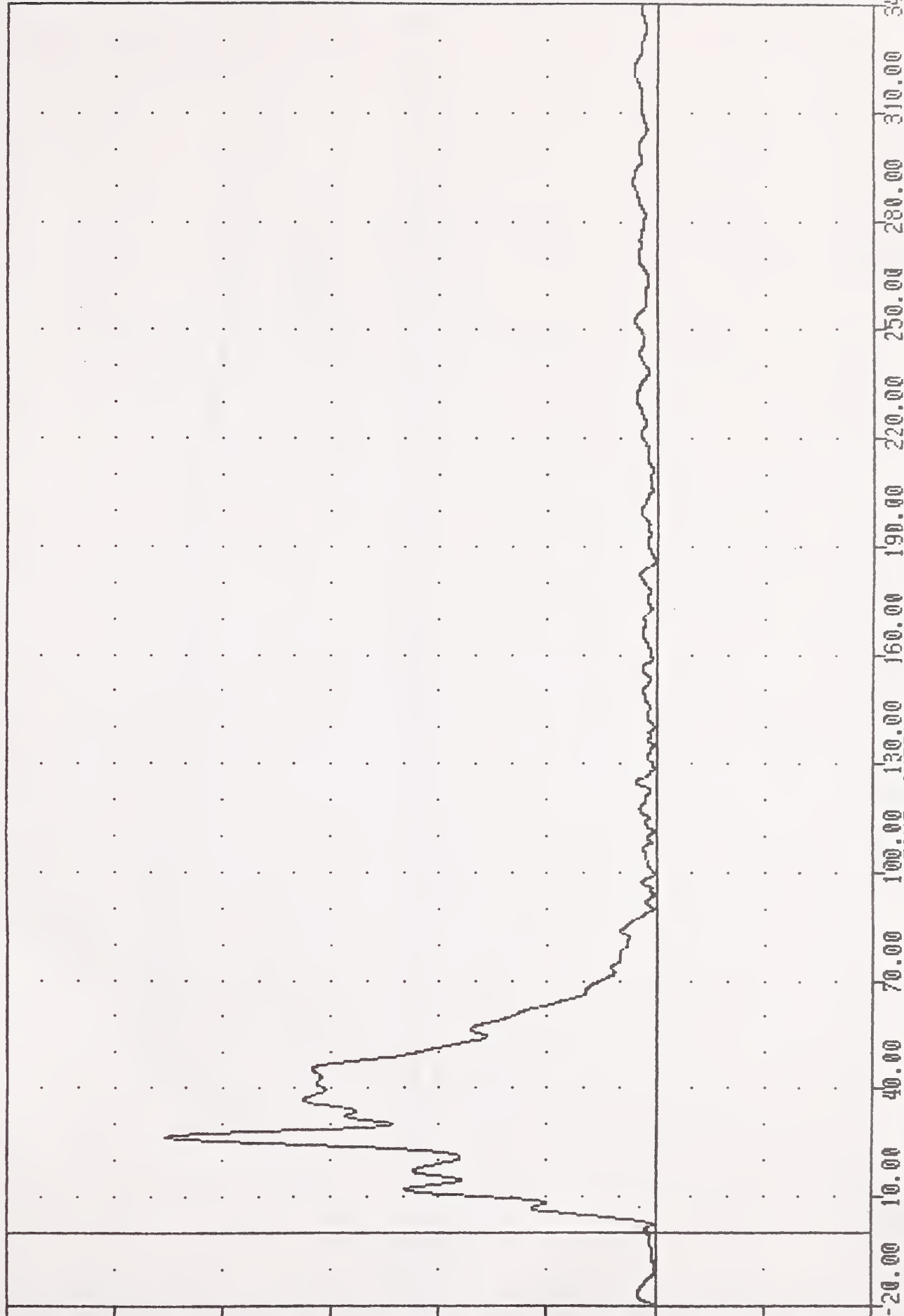


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH *2
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900830-2 , TRC
CRASH III DAMAGE ALGORITHM
90242
BCGRG

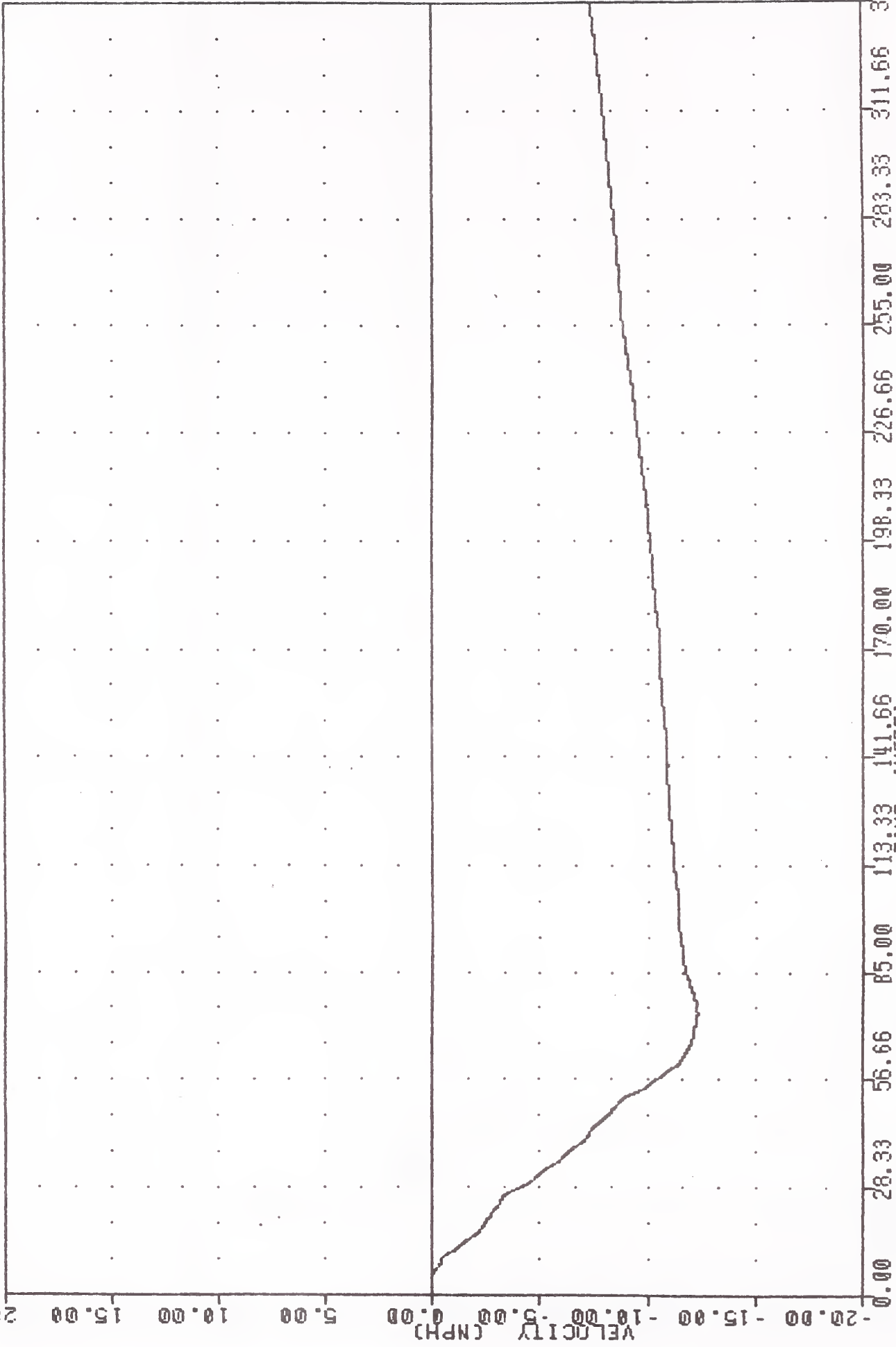
FILTER = BLFP 100/ 250/ -16
MIN, MAX VALUES = 0.01e -11.00, 22.63 e 26.50

ACCELERATION (G)



900330-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSXV1

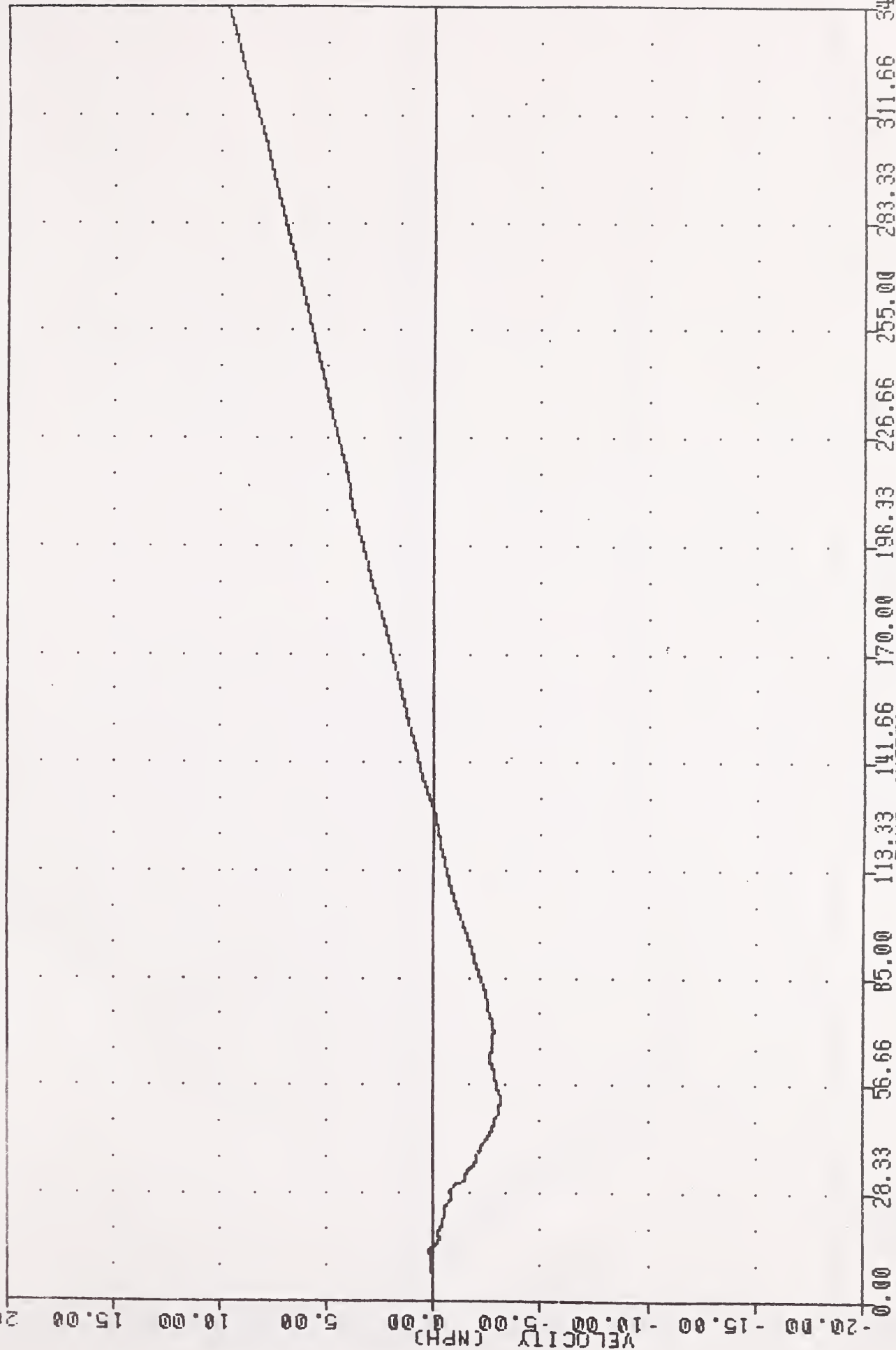
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -12.33B 74.13, 0.00 e 3.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 LEFT FRONT STILL X-AXIS VELOCITY

900830-2
 CRASH III DAMAGE ALGORITHM
 90242
 LFSYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -3.200 52.88 9.65 340.00

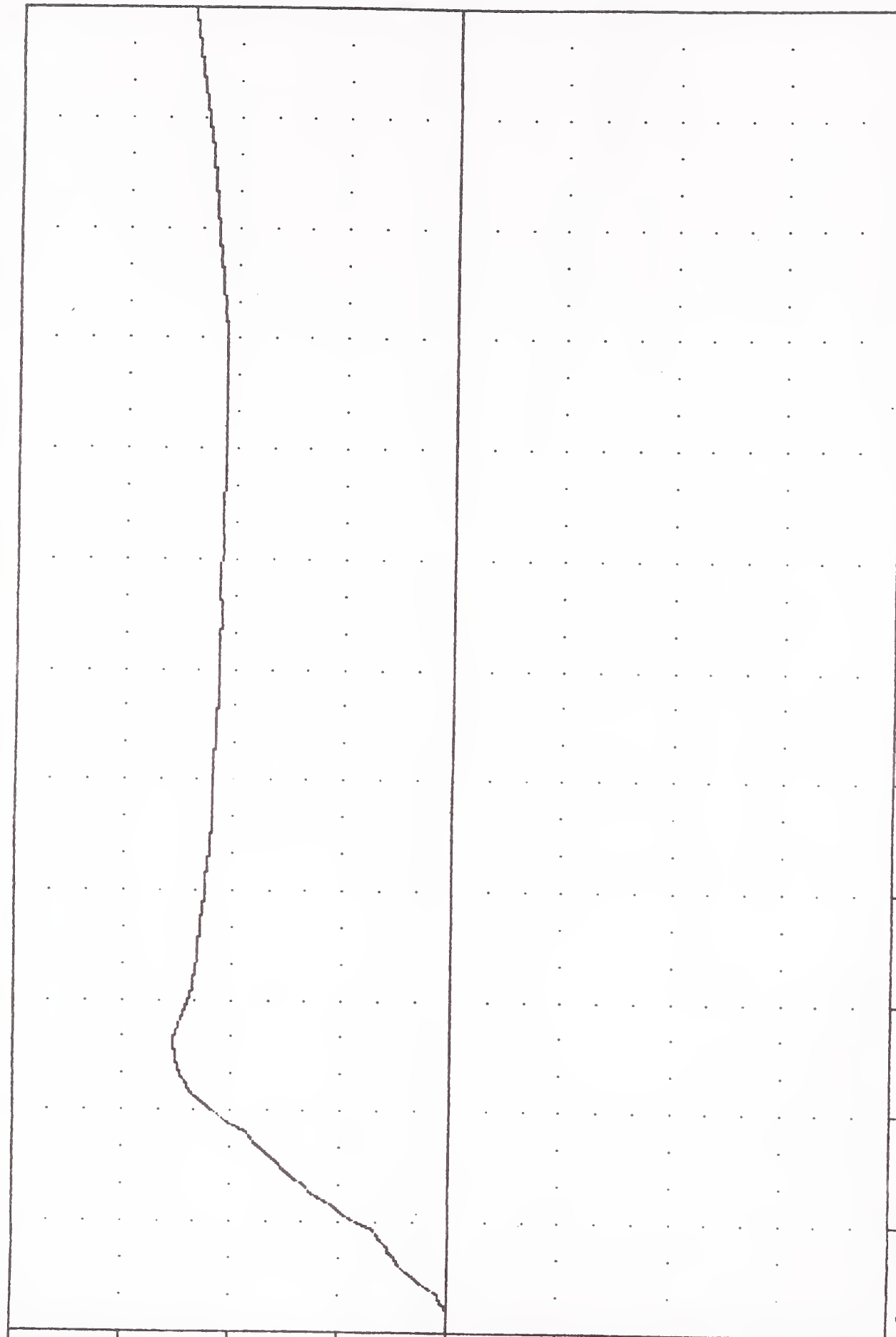


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 LEFT FRONT SILL Y-AXIS VELOCITY

900830-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSRV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00e 0.00, 12.62 e 74.00

VELOCITY (MPH)



CONTOURED MOVING BARRIER INTO FORO ESCORT AT 28.1 MPH #2
 LEFT FRONT SILL RESULTANT VELOCITY

900630-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -17.54e 81.50, 0.12 e 7.88

20.00

15.00

10.00

5.00

0.00

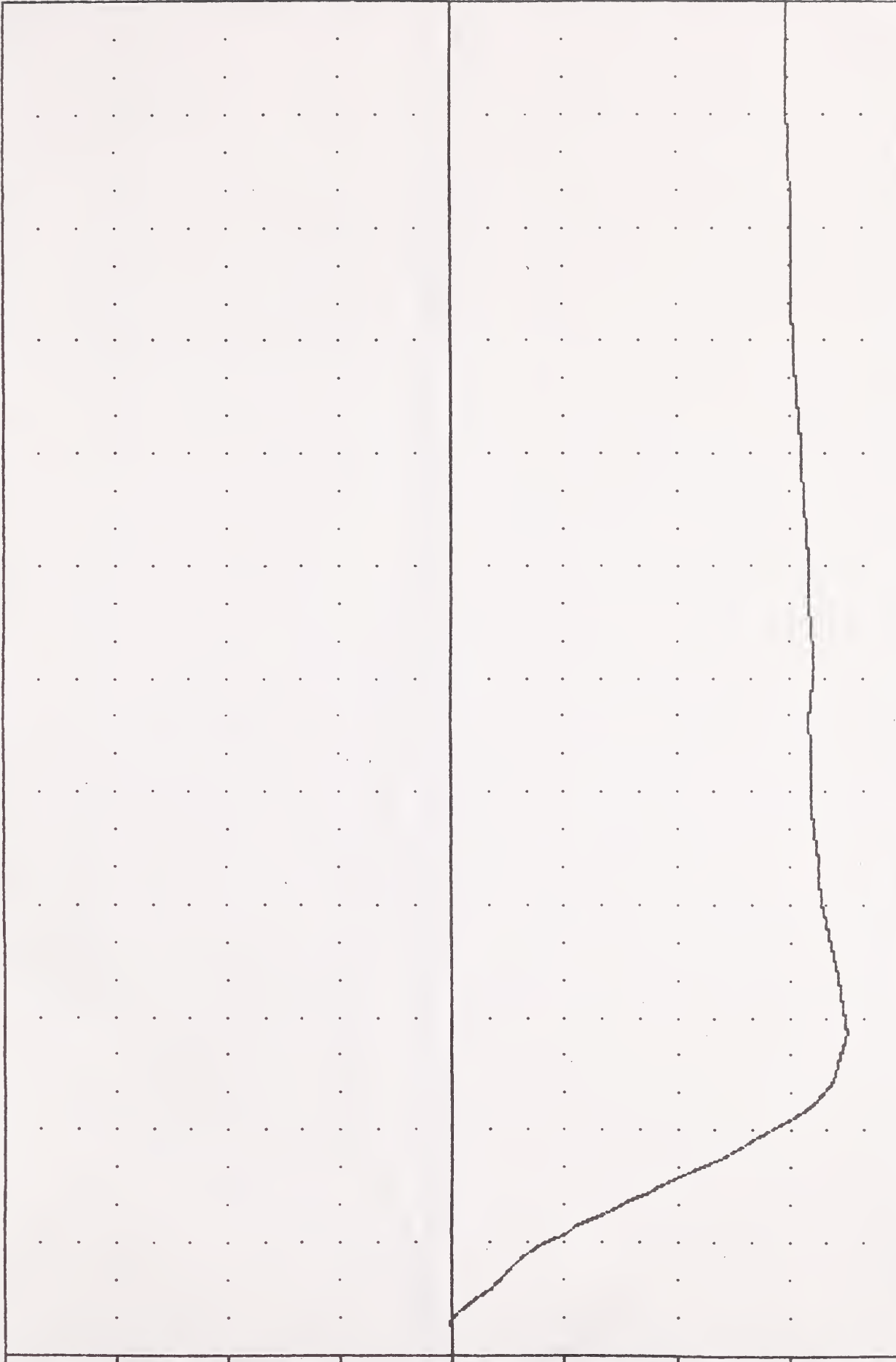
VELOCITY (MPH)

-5.00

-10.00

-15.00

-20.00



0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

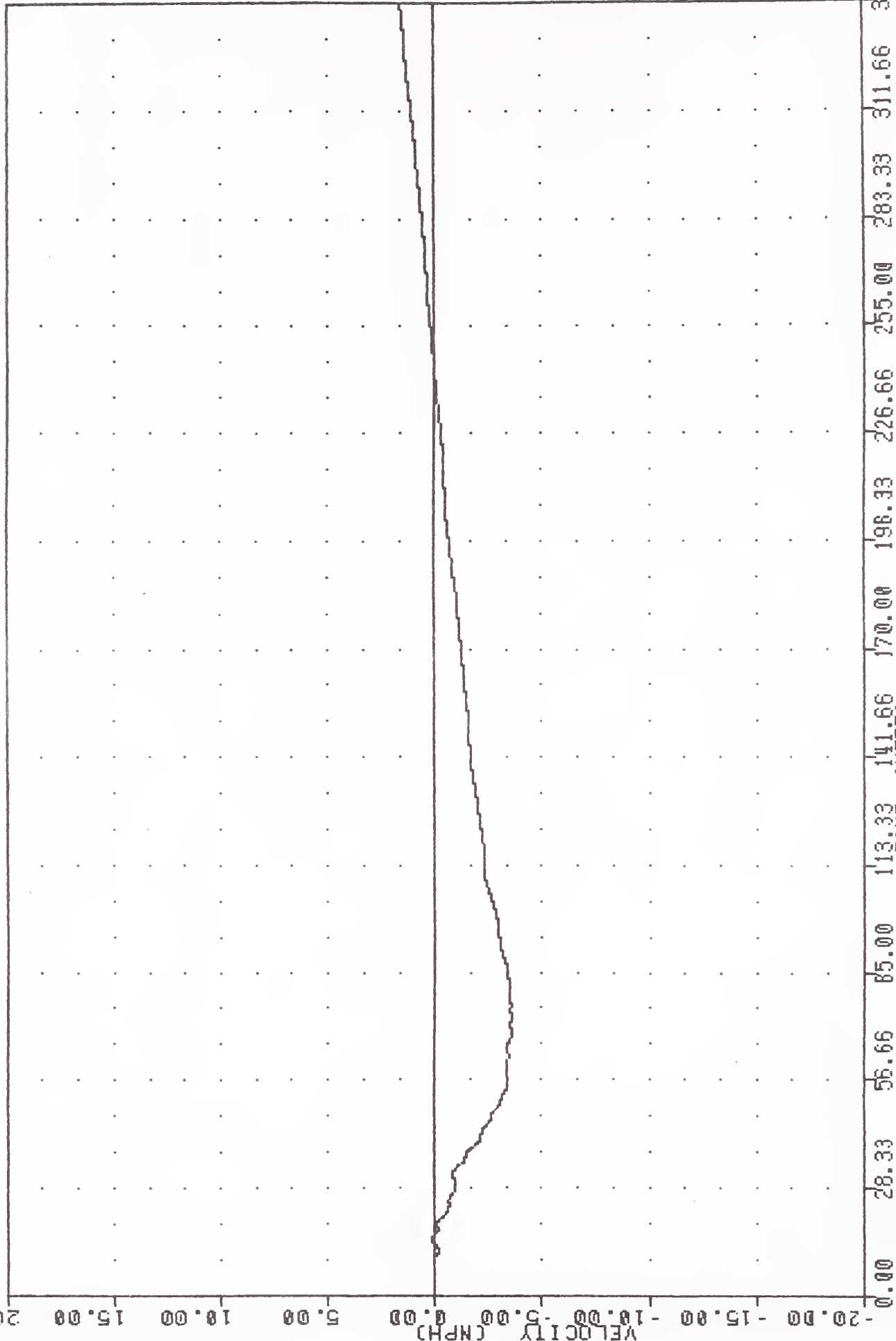
311.66

340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 RIGHT FRONT SILL X-AXIS VELOCITY

900830-2 , TRC
CRASH III DAMAGE ALGORITHM
90242
AFSYV1

FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -3.59e 68.63, 1.61 e 340.00

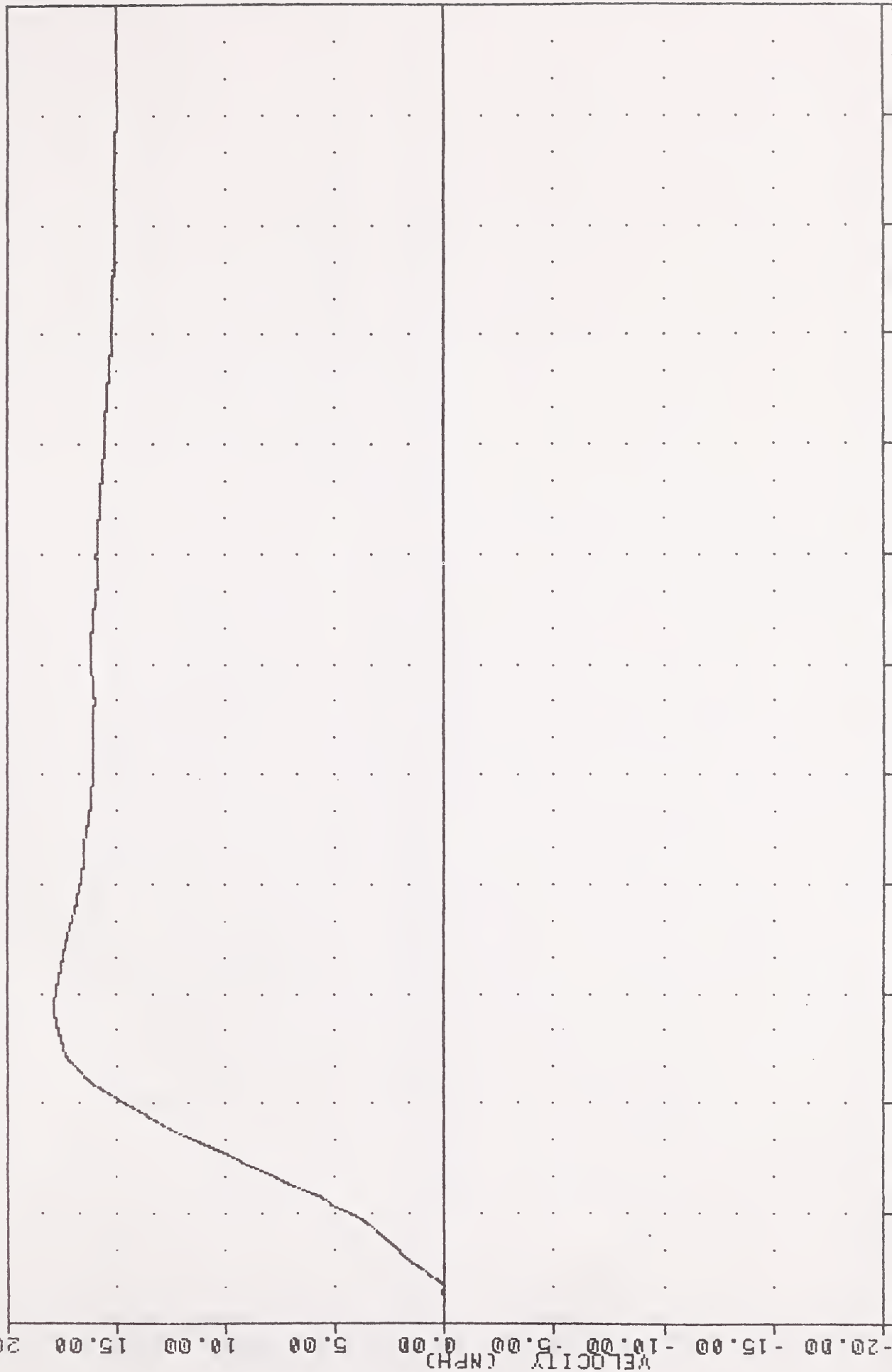


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
RIGHT FRONT SILL Y-AXIS VELOCITY

900838-2 TAC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSRV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00, 17.89 81.50

20.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 RIGHT FRONT SILL RESULTANT VELOCITY

900330-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGXV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -15.47 82.75 0.00 0.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

VELOCITY (MPH)

0.00

28.33

55.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

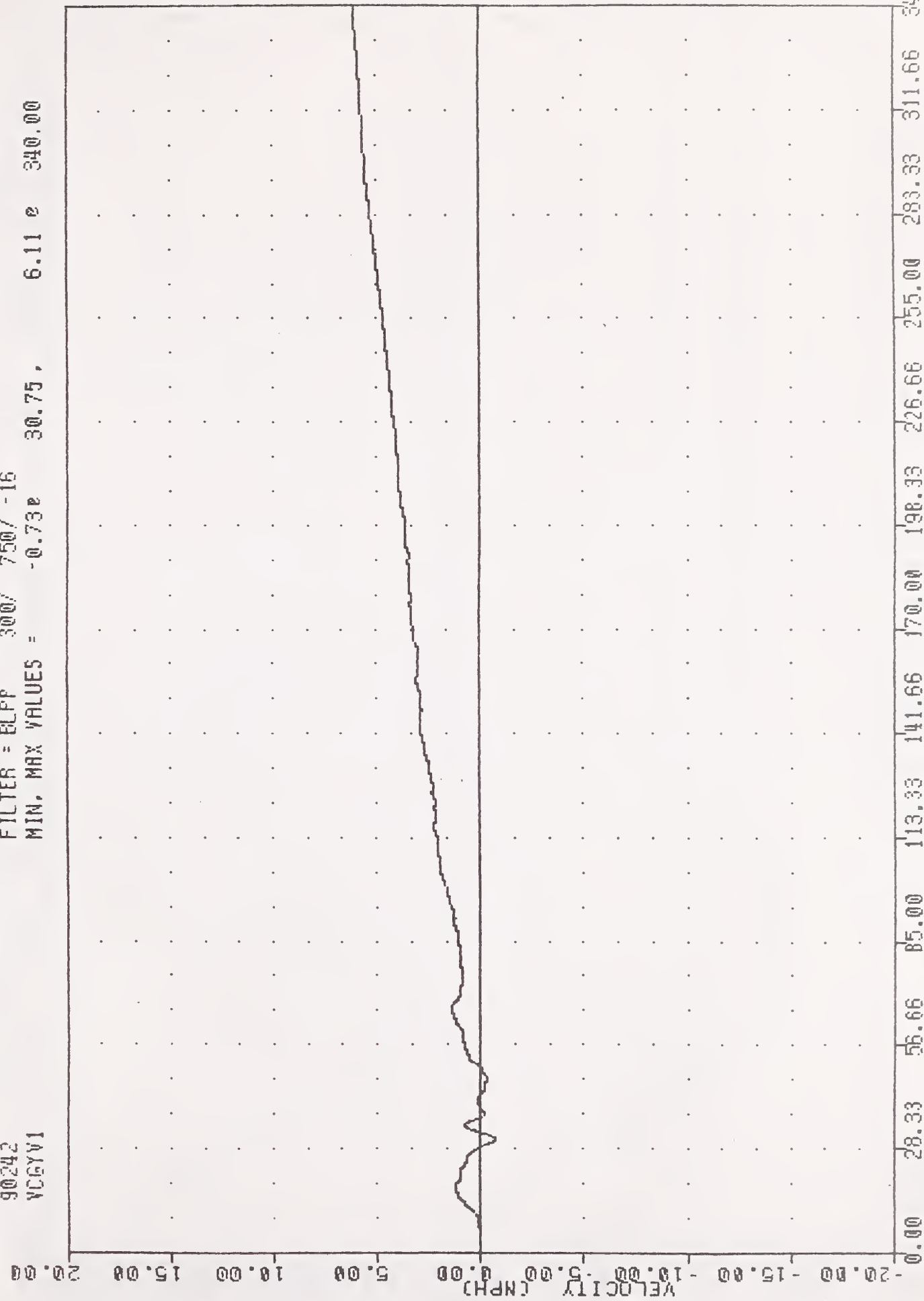
340.00

TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH *2
 VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900830-2
 CRASH III DAMAGE ALGORITHM
 90242
 VCGYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -0.73e 30.75, 6.11e 340.00

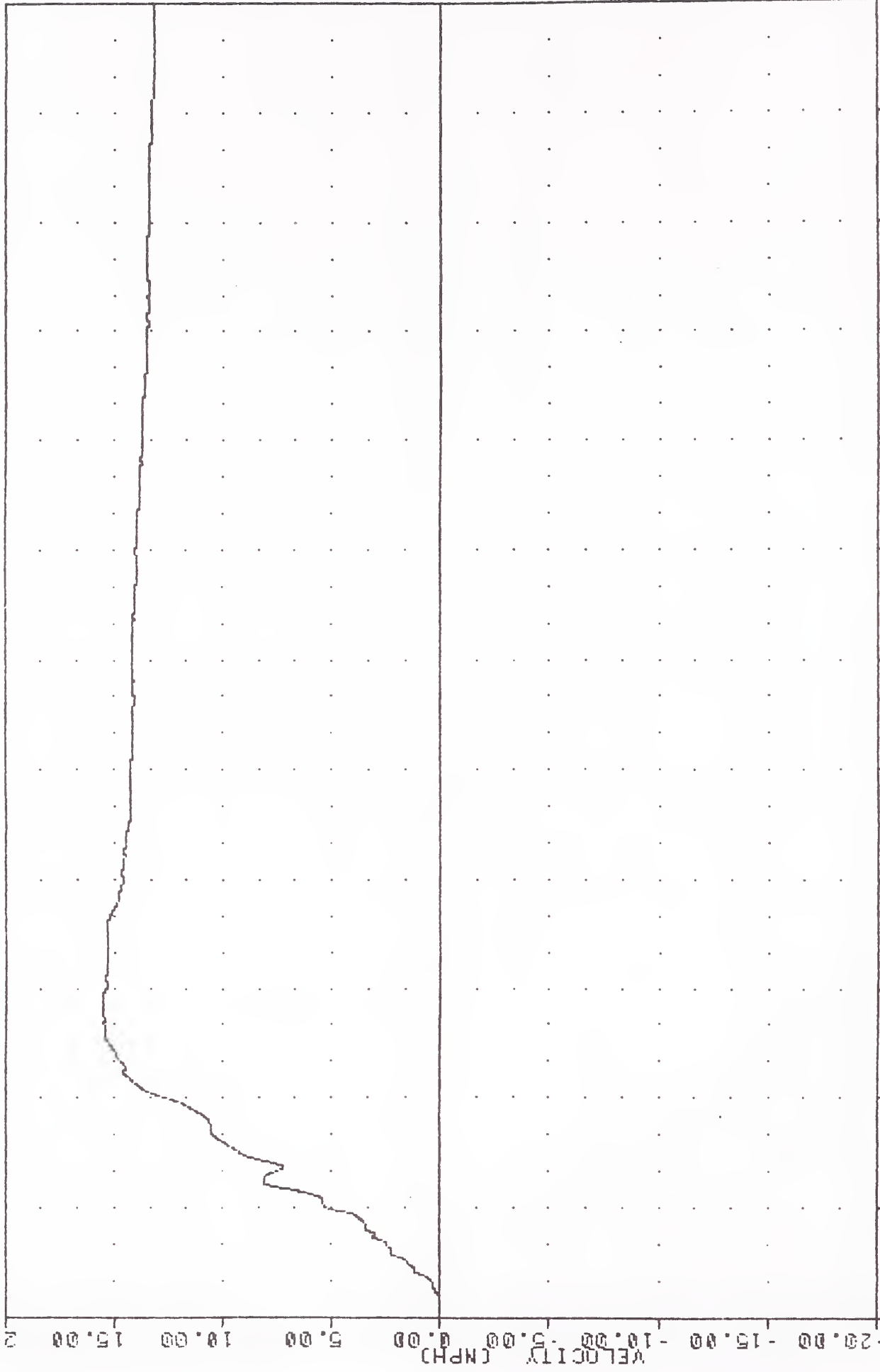


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

900838-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 YCGRV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00 15.51 82.75

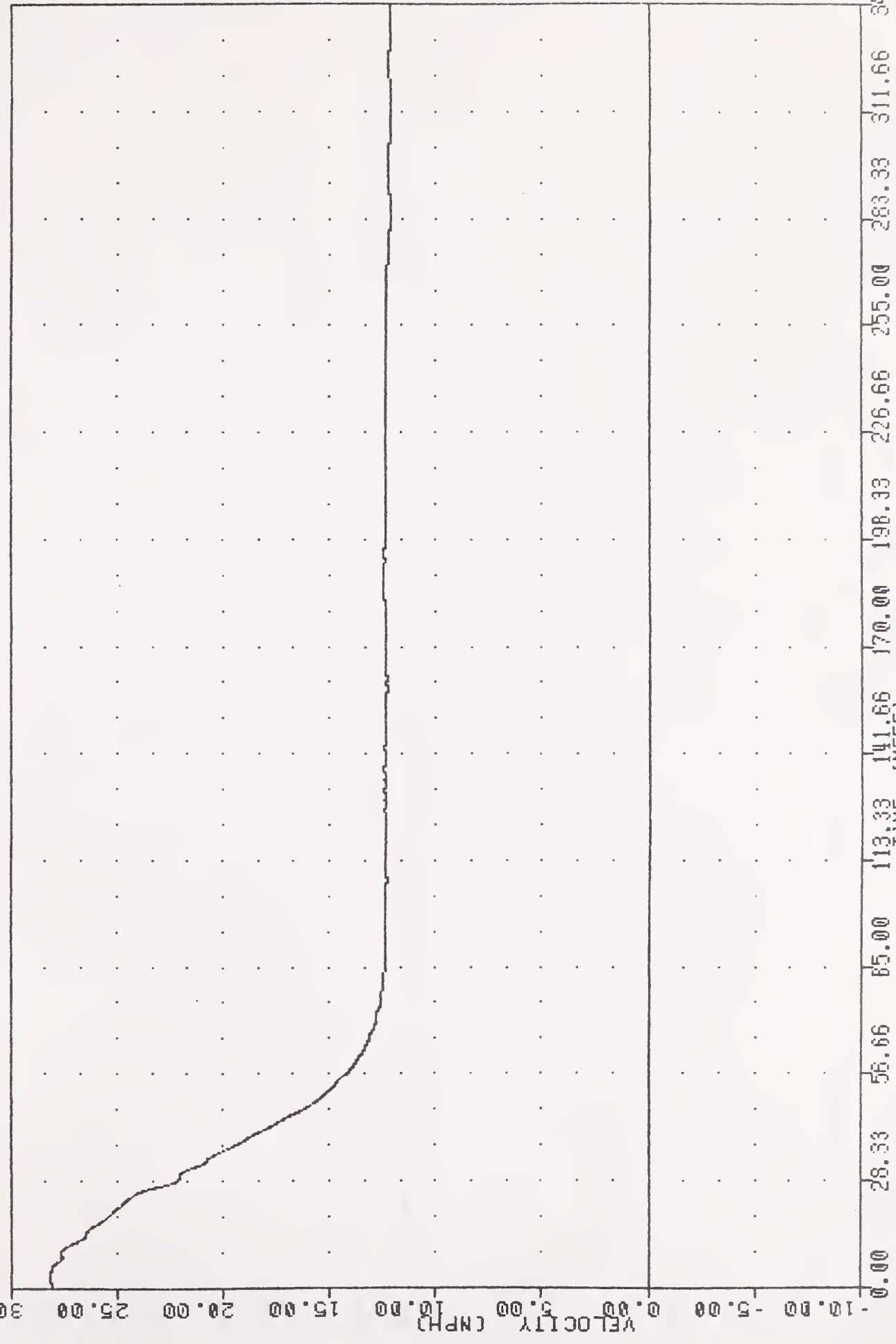
20.00



0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)
 CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 VEHICLE CG RESULTANT VELOCITY

900830-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXV

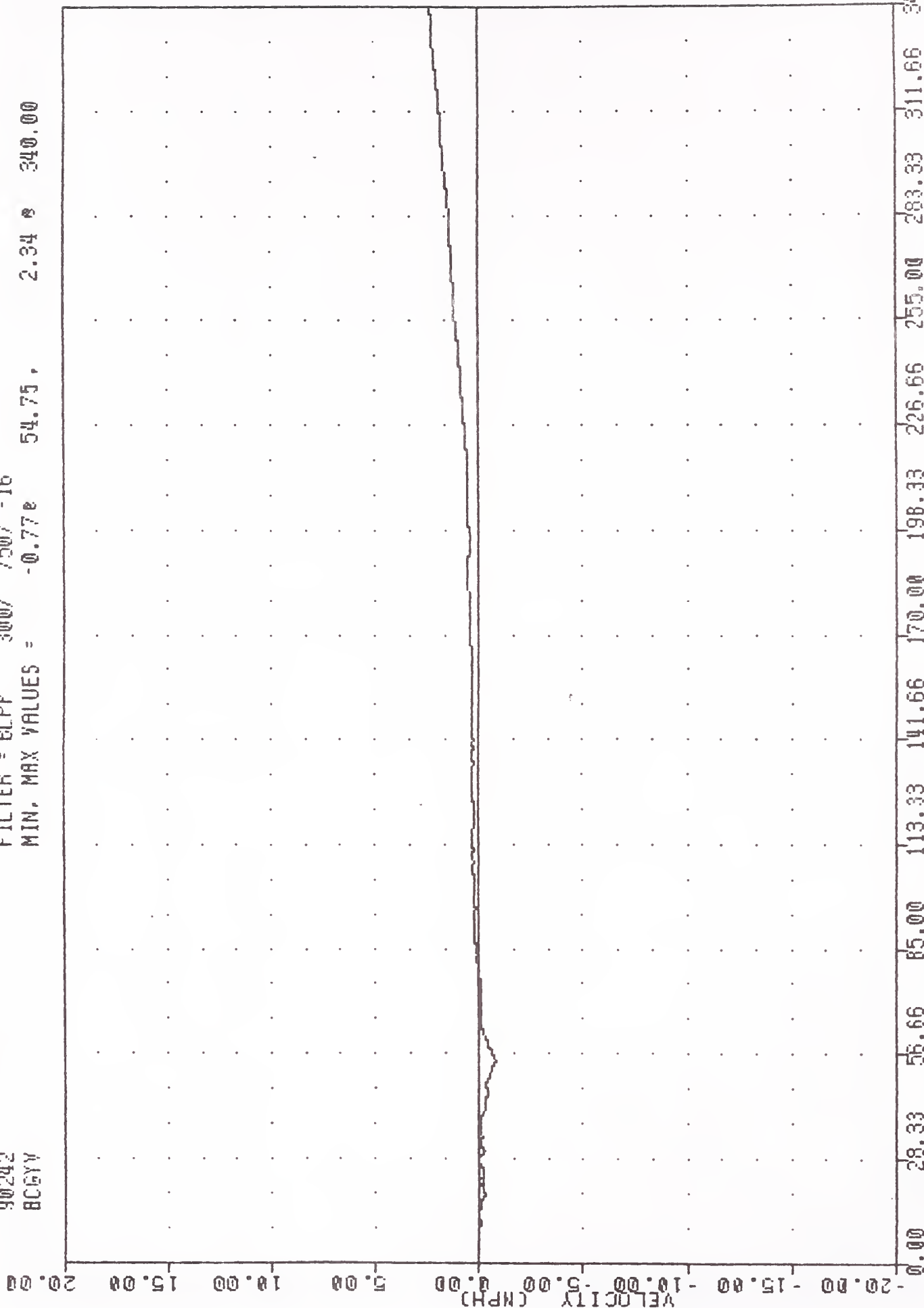
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 12.15 340.00, 28.11 2.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH *2
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

900830-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGY

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 54.75 , 2.34 s 340.00

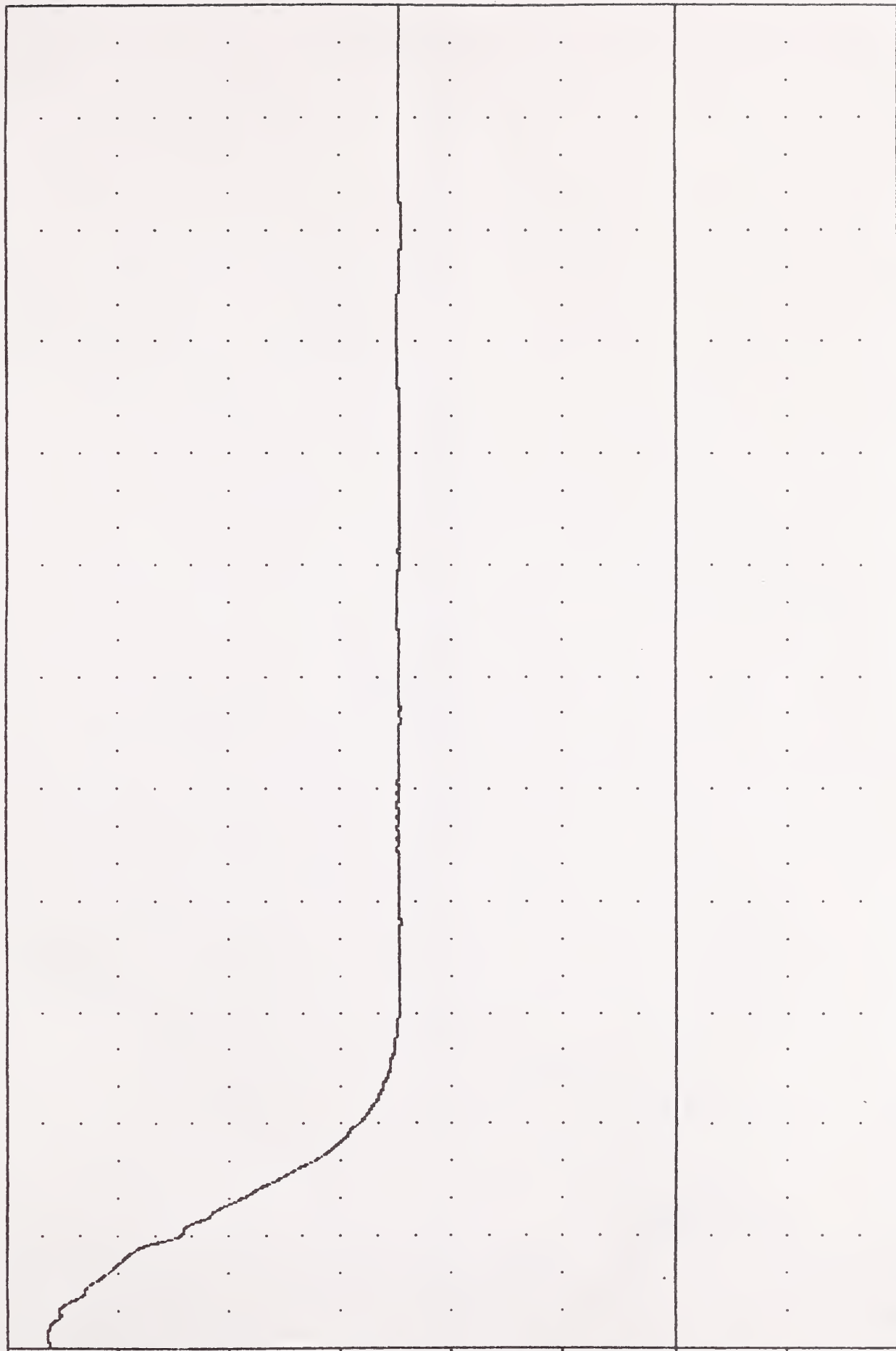


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

900630-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRY

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 12.25e 282.13, 28.11 e 2.13

30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00

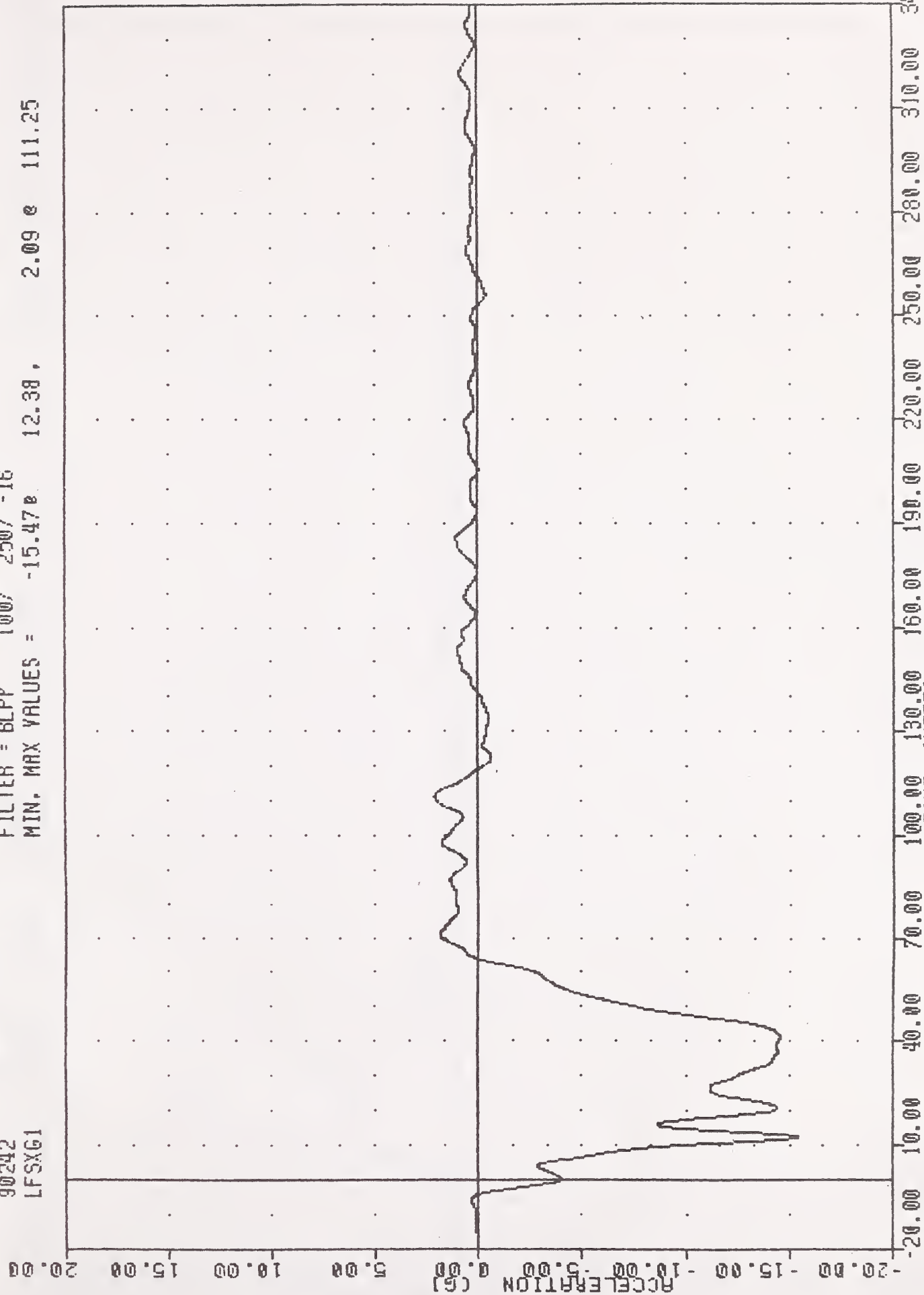


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.1 MPH #2
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

TEST #900830-3

900330-8
CRASH III DAMAGE ALGORITHM
90242
LFSXG1

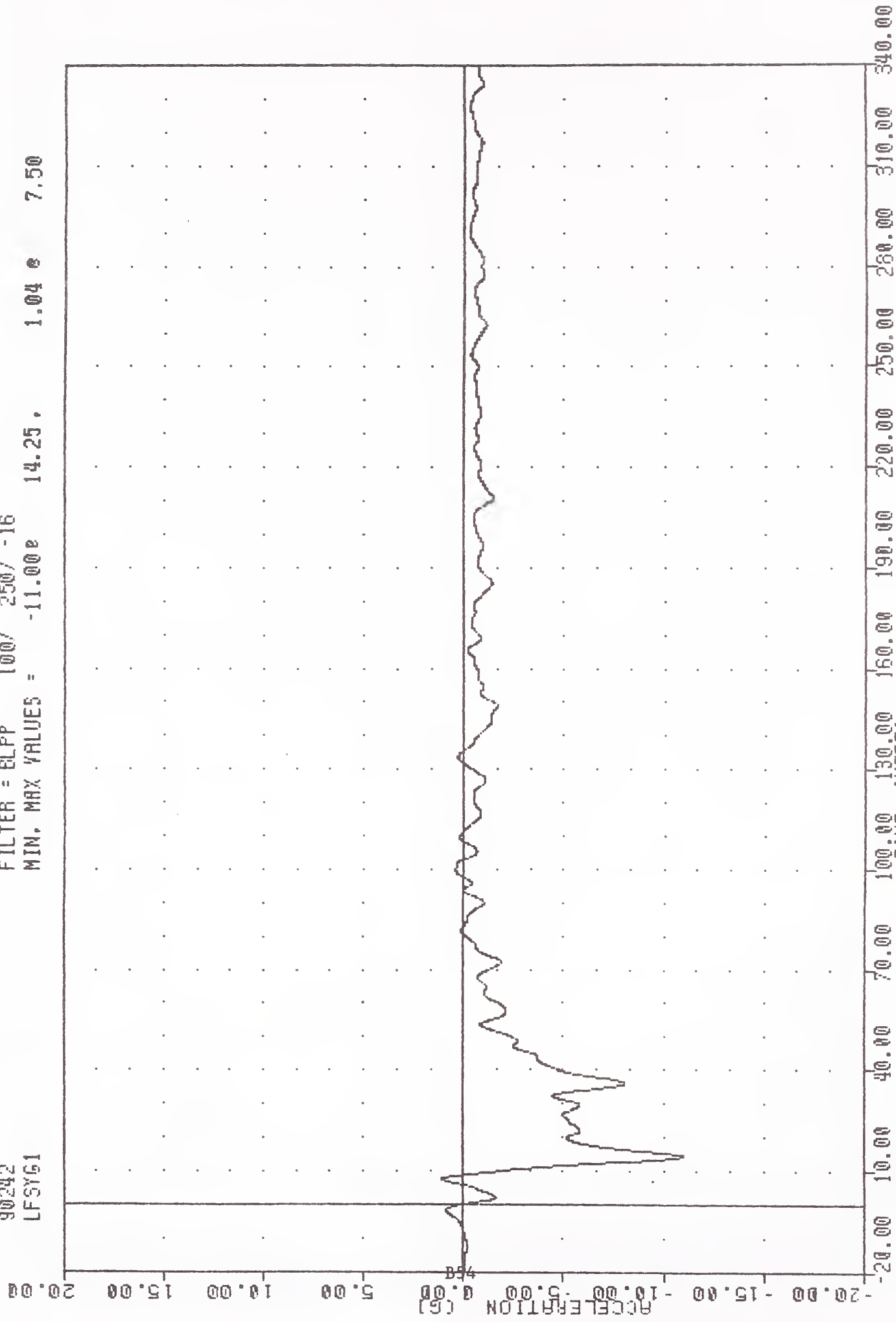
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -15.47e 12.38, 2.09 e 111.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH *3
LEFT FRONT SILL X-AXIS ACCELERATION

900830-3 , TRC
CRASH III DAMAGE ALGORITHM
90242
LFSYG1

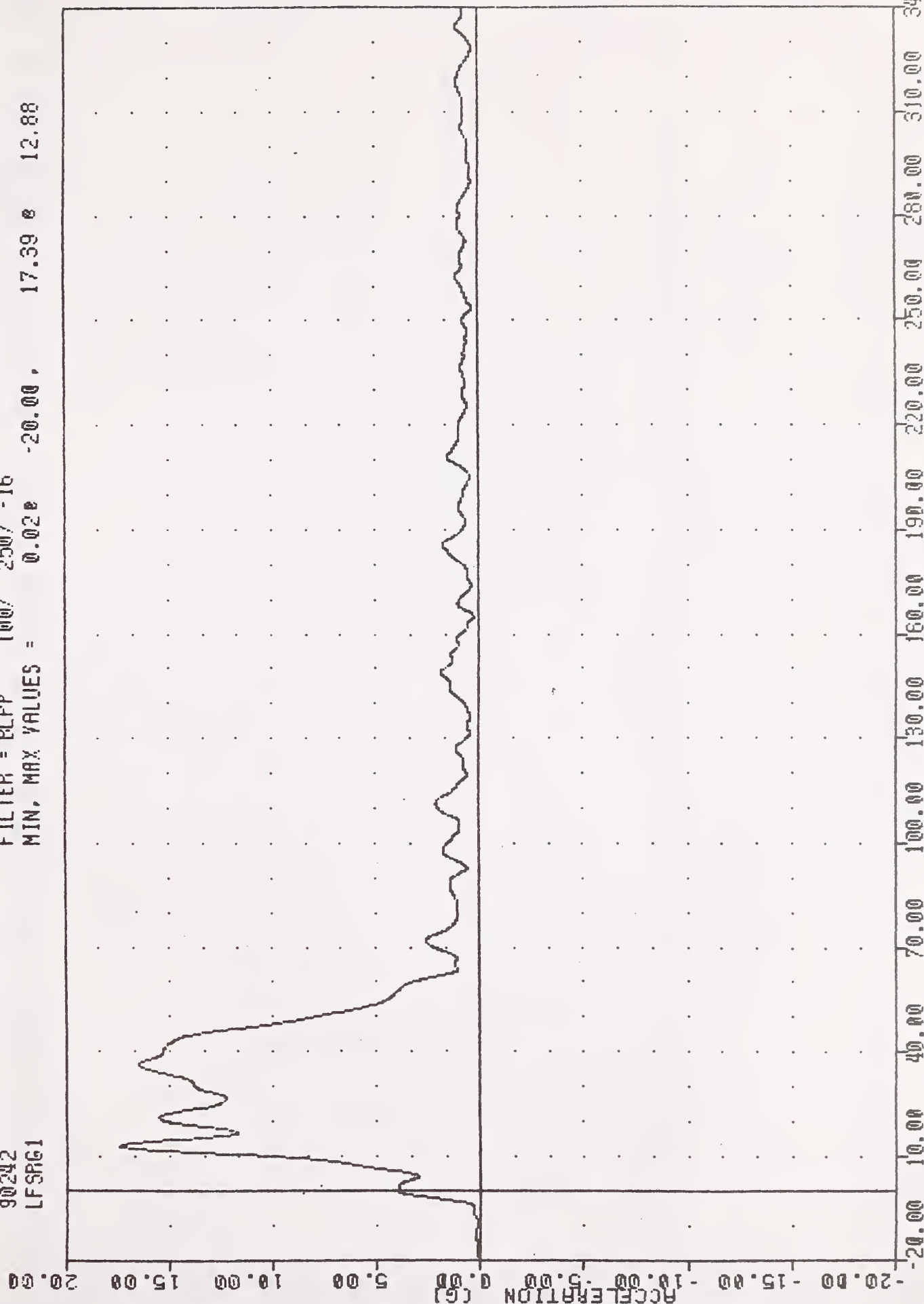
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -11.00e 14.25, 1.04 e 7.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
LEFT FRONT SILL Y-AXIS ACCELERATION

900830-3 , TRC
CRASH III DAMAGE ALGORITHM
90242
LFSRG1

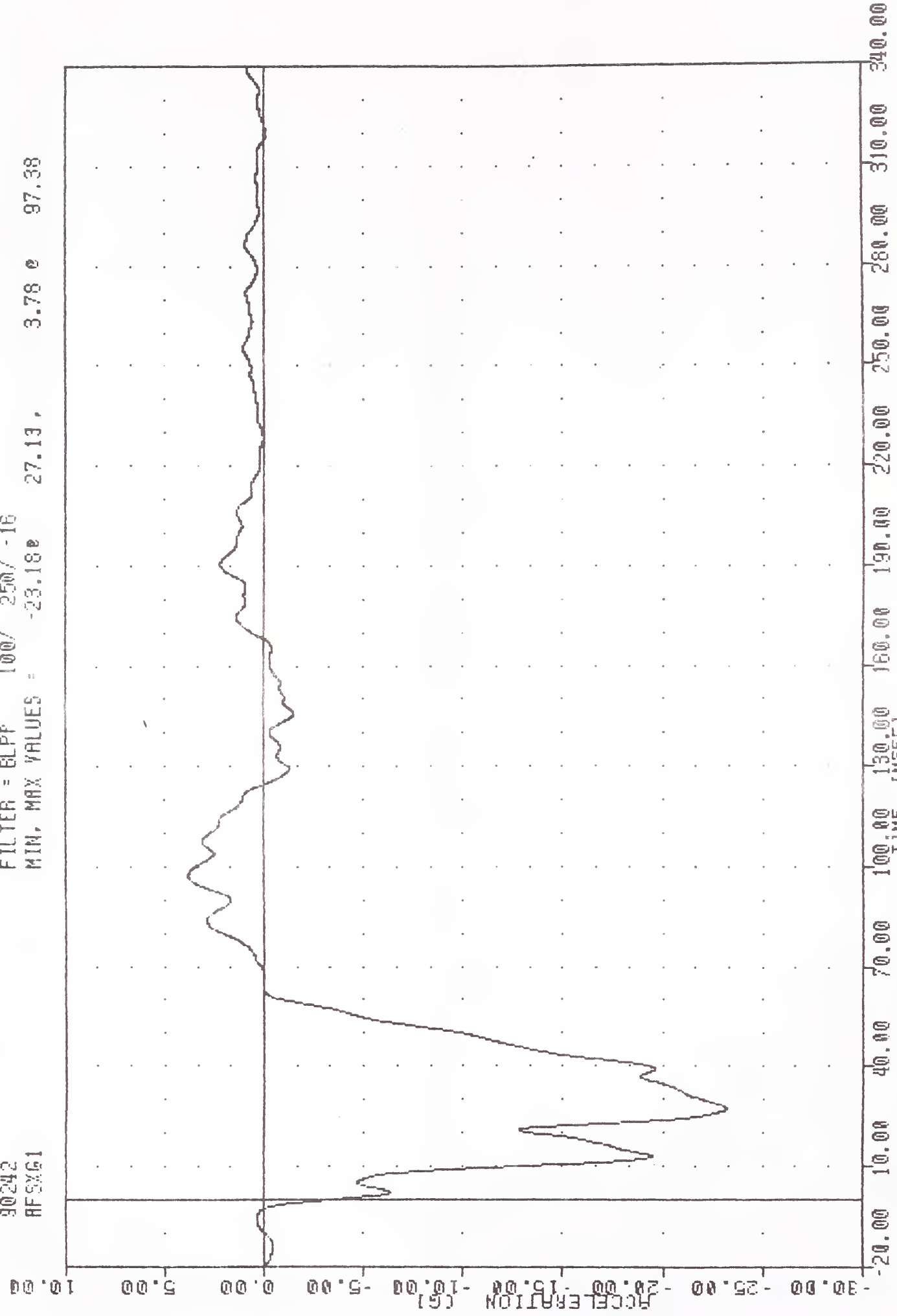
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.02e -20.00, 17.39 e 12.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
LEFT FRONT SILL RESULTANT ACCELERATION

900030-3 . TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSXG1

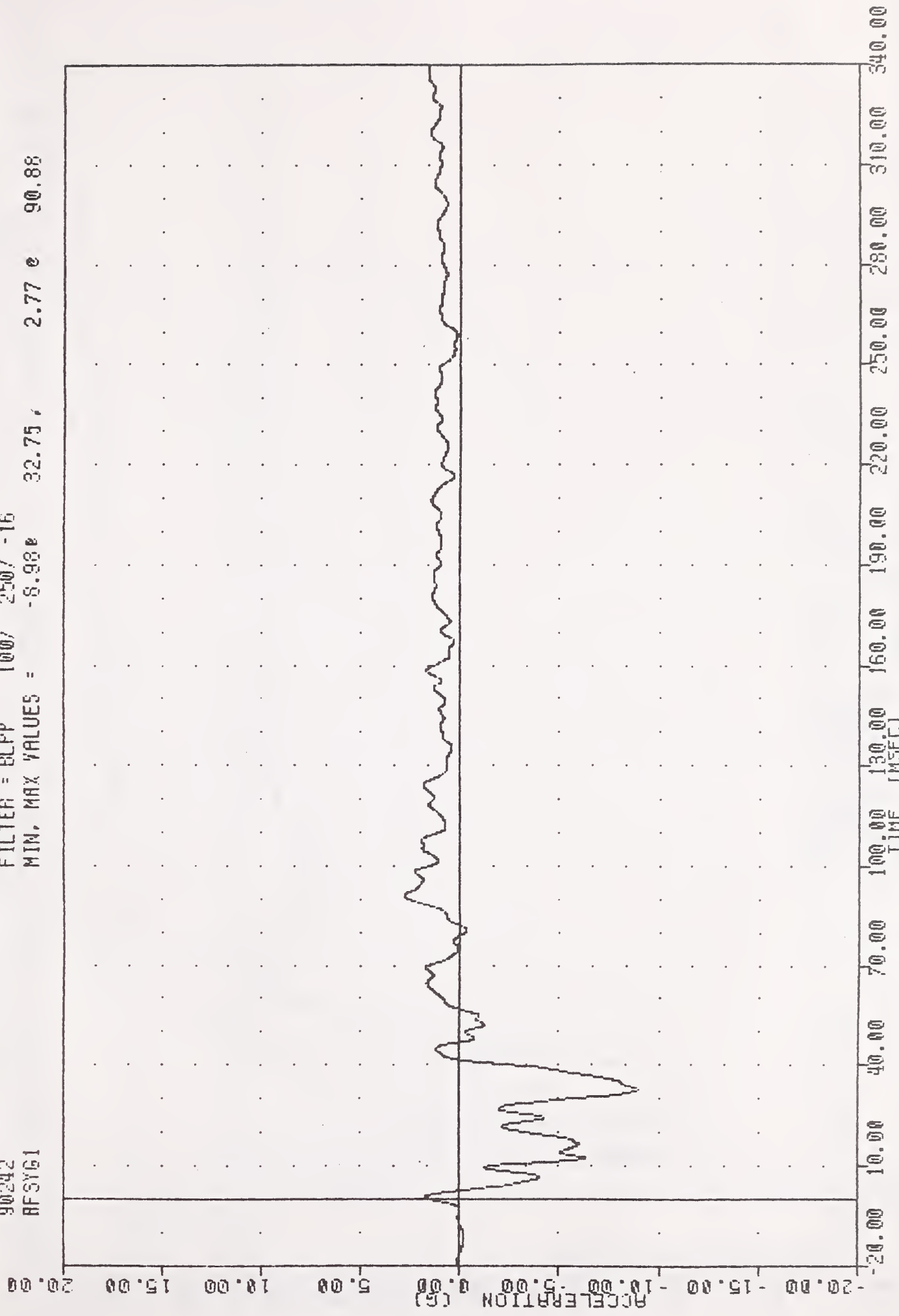
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -23.18e 27.13, 3.78 e 97.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 RIGHT FRONT SILL X-AXIS ACCELERATION

900830-3 , TAC
CRASH III DAMAGE ALGORITHM
90242
RFSY61

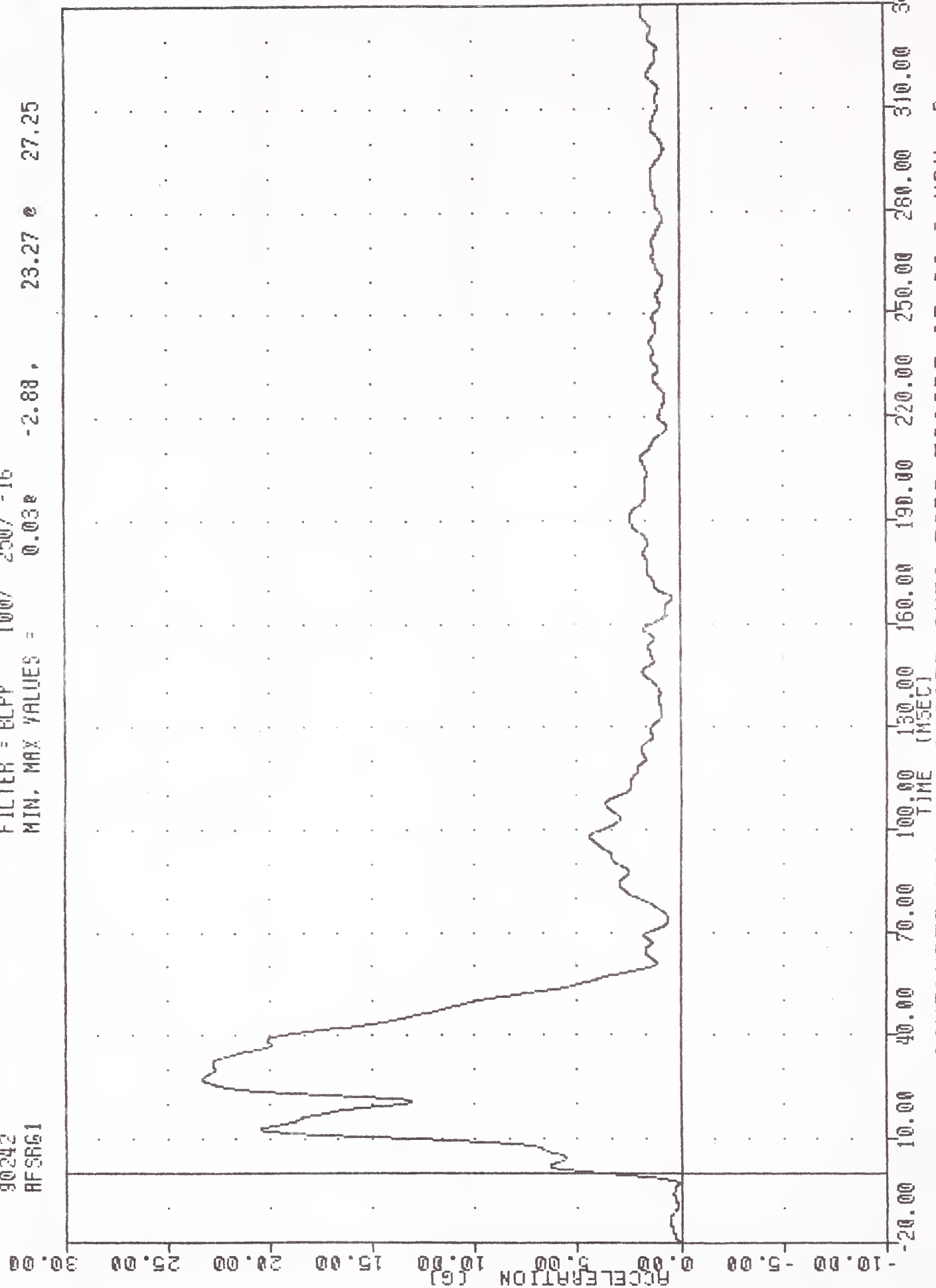
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -8.98 32.75 2.77 90.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
RIGHT FRONT SILL Y-AXIS ACCELERATION

900830-3 .TRC
CRASH III DAMAGE ALGORITHM
90242
AFSRG1

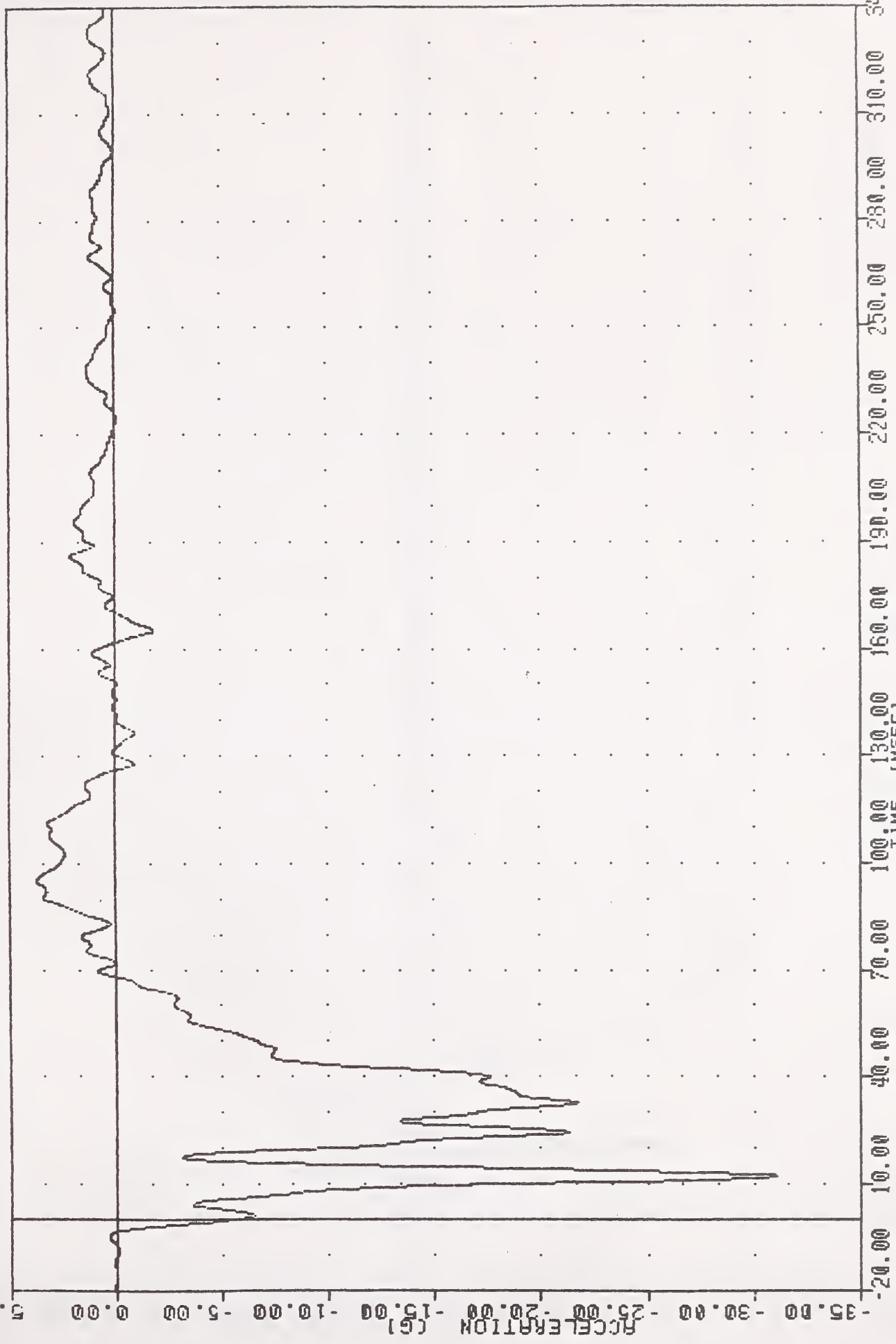
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 0.03e -2.88 , 23.27 e 27.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
RIGHT FRONT SILL RESULTANT ACCELERATION

900000-3
 CRASH III DAMAGE ALGORITHM
 90242
 VCEXG1

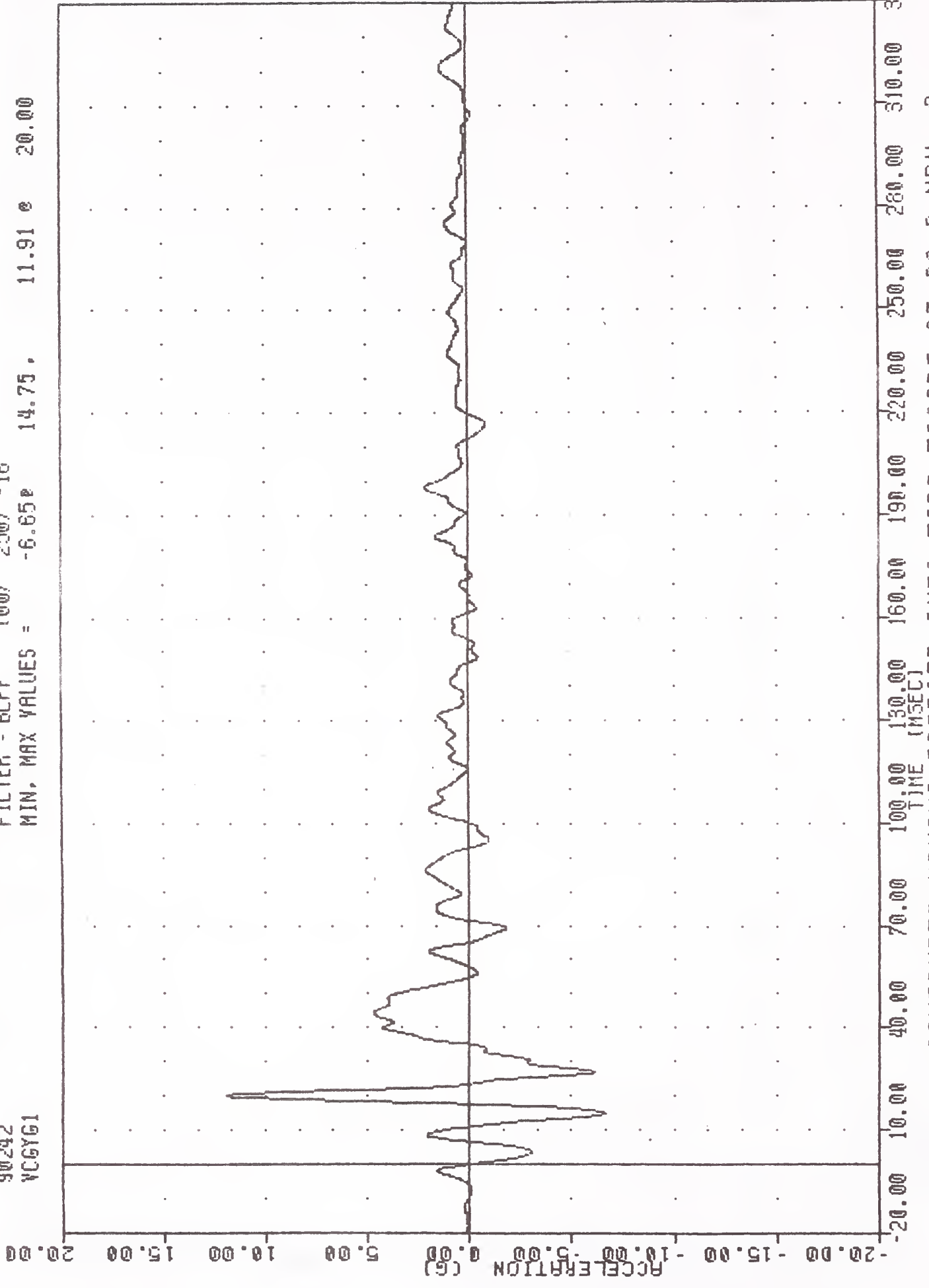
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -31.13 3.68 95.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

900830-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGYG1

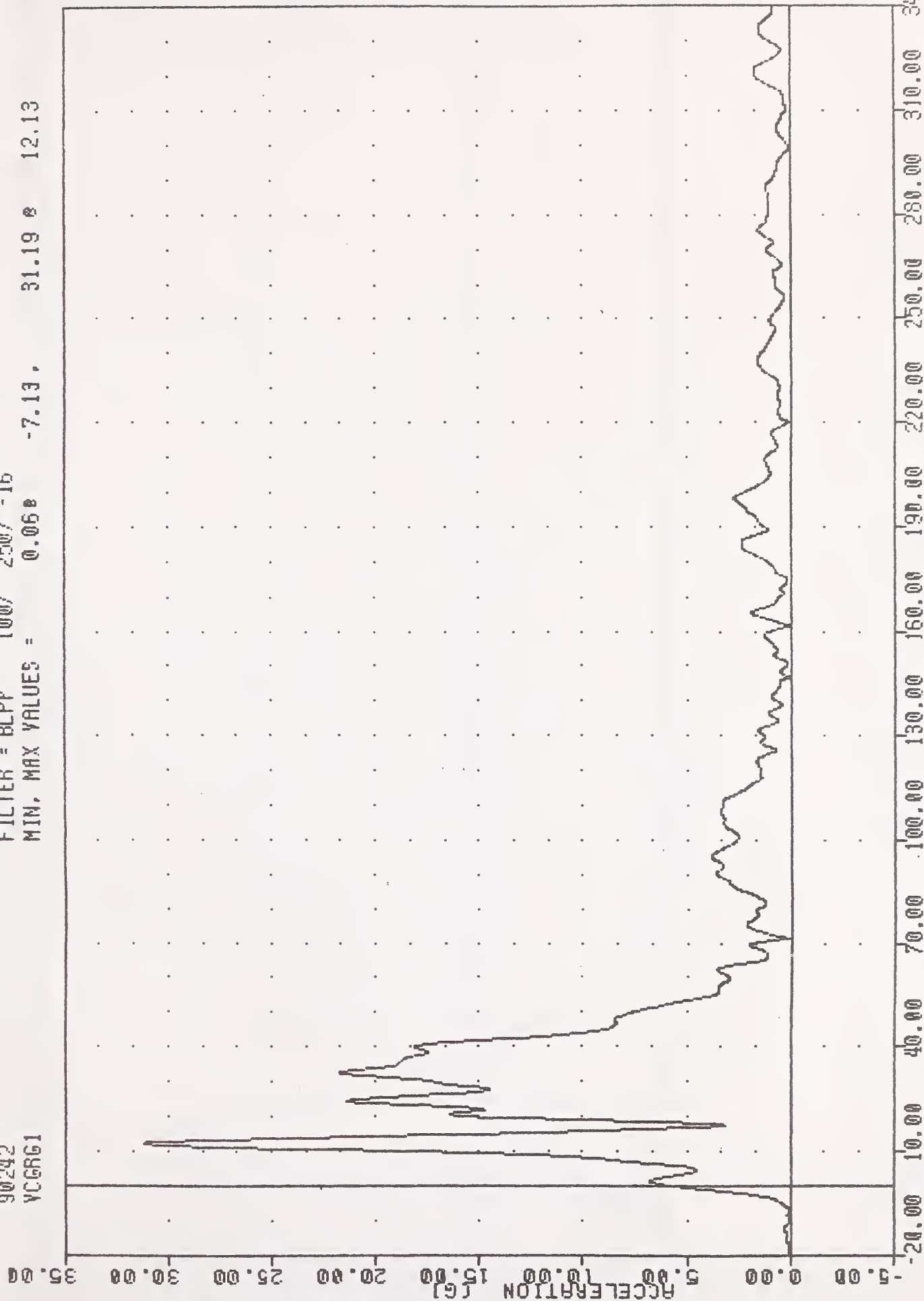
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -6.65 14.75 11.91 20.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

900830-3
 CRASH III DAMAGE ALGORITHM
 90242
 VCGRG1

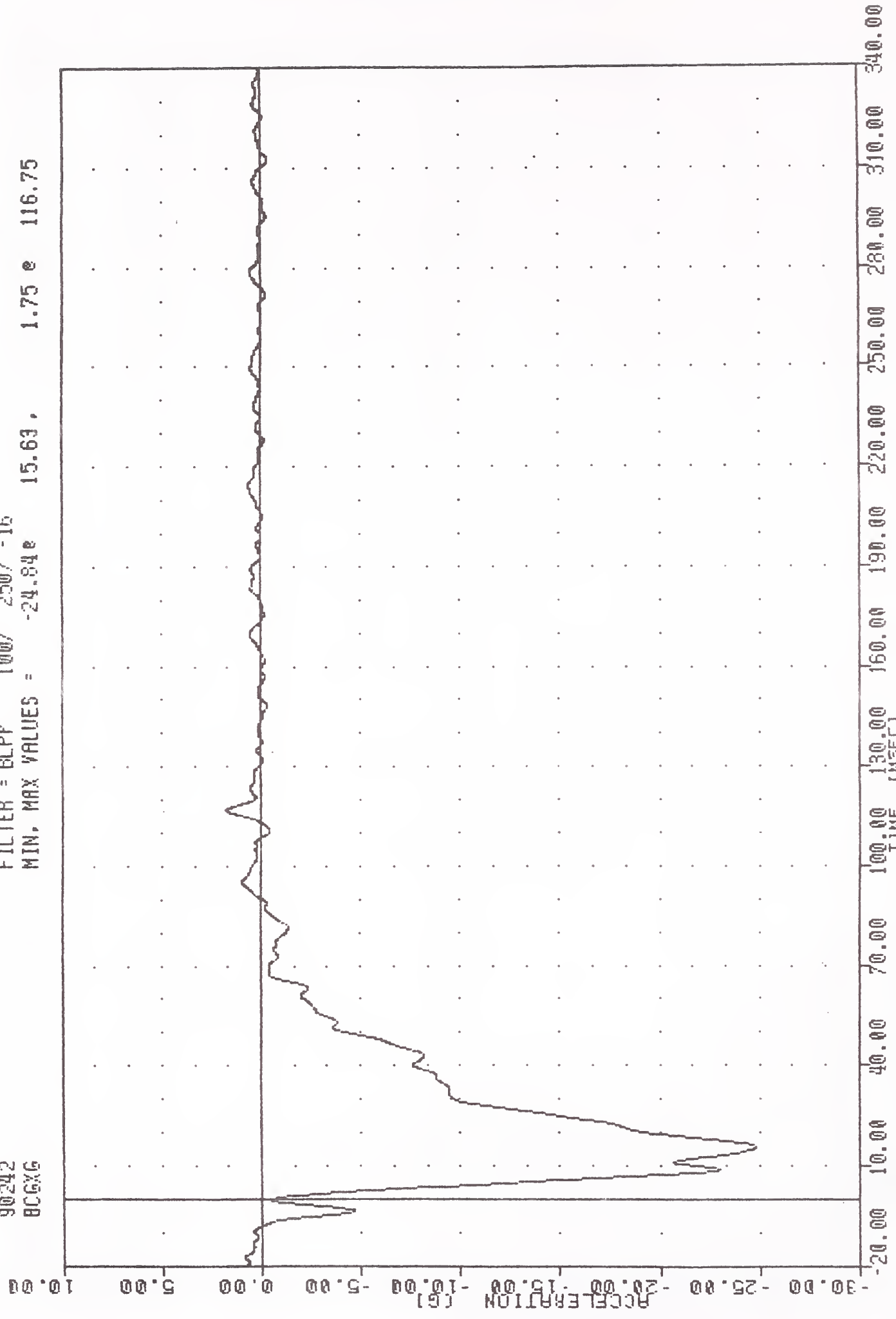
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = 0.068 -7.13, 31.19 8 12.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 VEHICLE CG RESULTANT ACCELERATION

900830-3 , TRC
CRASH III DAMAGE ALGORITHM
90242
BCGXC

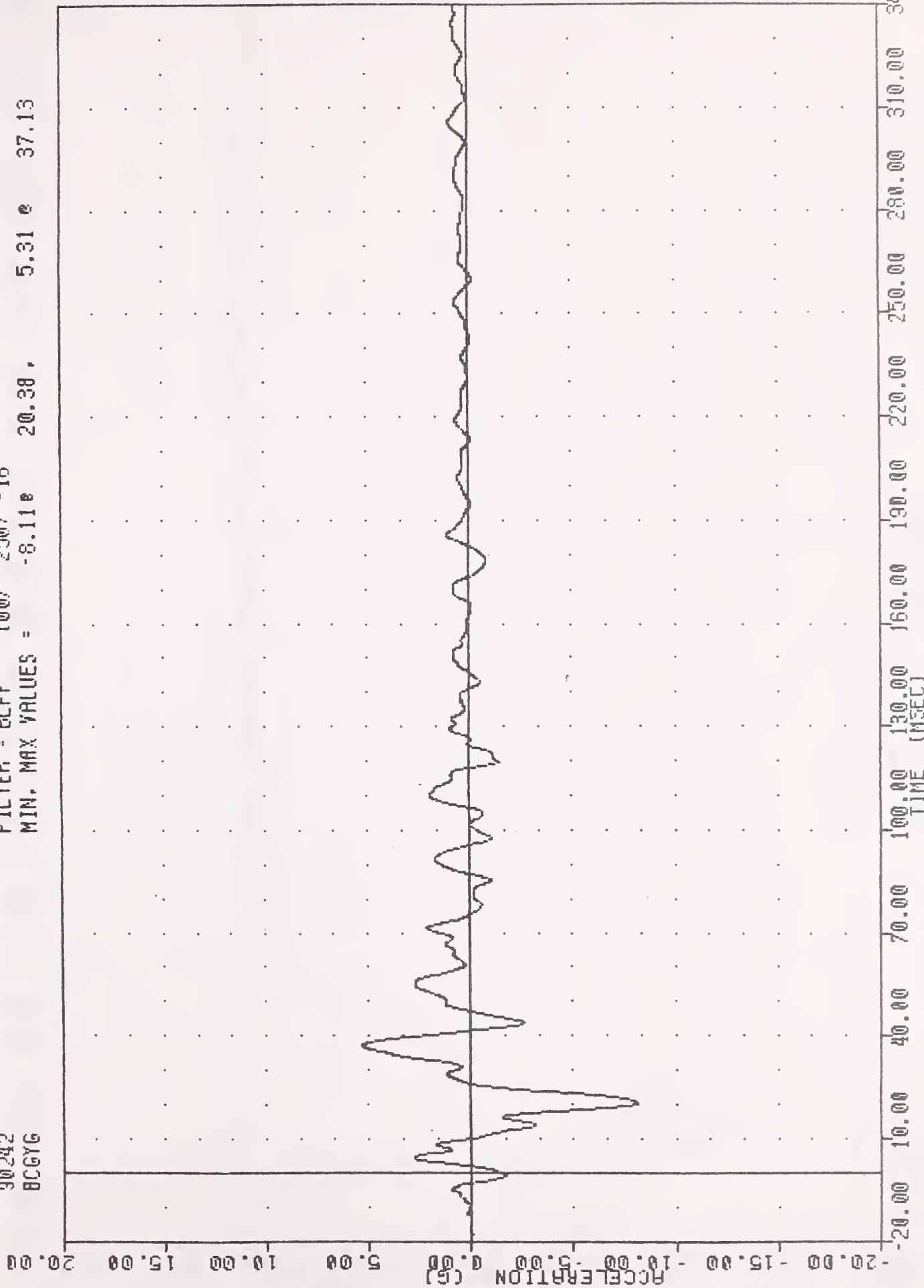
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -24.84e 15.63, 1.75 e 116.75



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

900830-3 , TRC
CRASH III DAMAGE ALGORITHM
90242
BCGYG

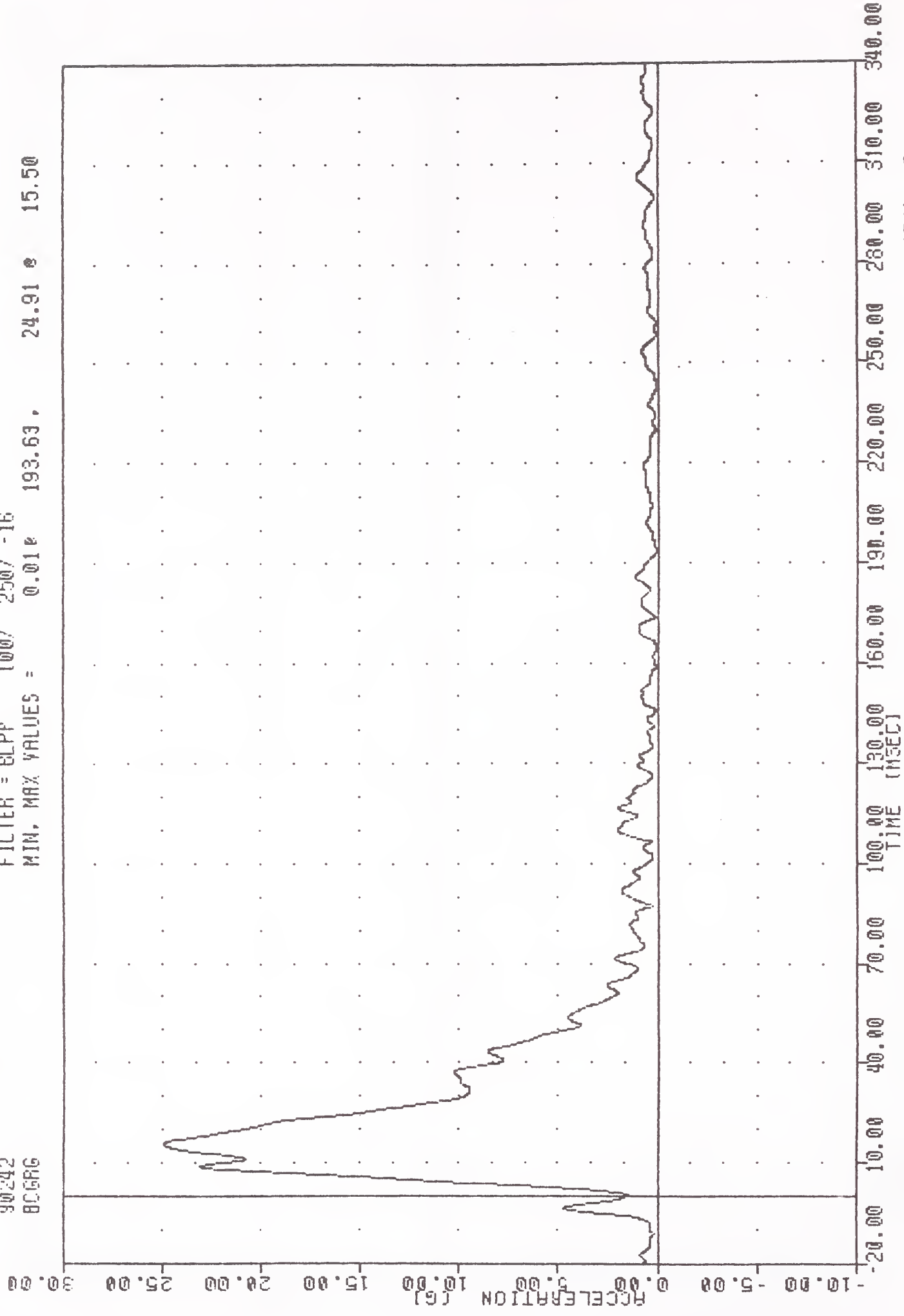
FILTER = BLFP 100/ 250/ -16
MIN. MAX VALUES = -8.11e 20.38 , 5.31 e 37.13



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900830-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRG

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.01 193.63, 24.91 15.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

900330-3 , TAC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -13.22 63.13, 0.00 0.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

VELOCITY (MPH)

0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

340.00

TIME (MSEC)

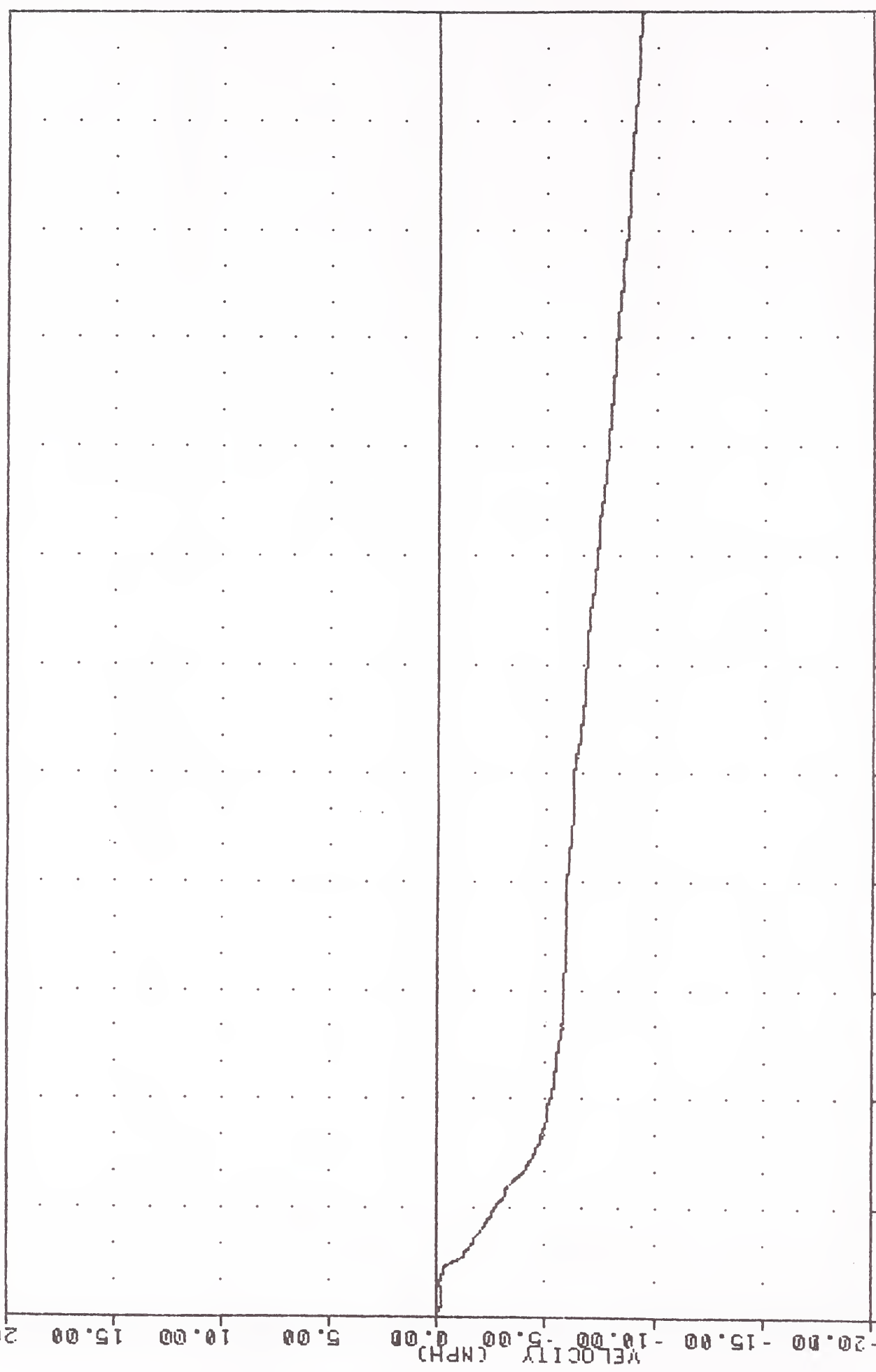
CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH *3

LEFT FRONT SILL X-AXIS VELOCITY

900030-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -9.36e 340.00 , 0.00 e 0.38

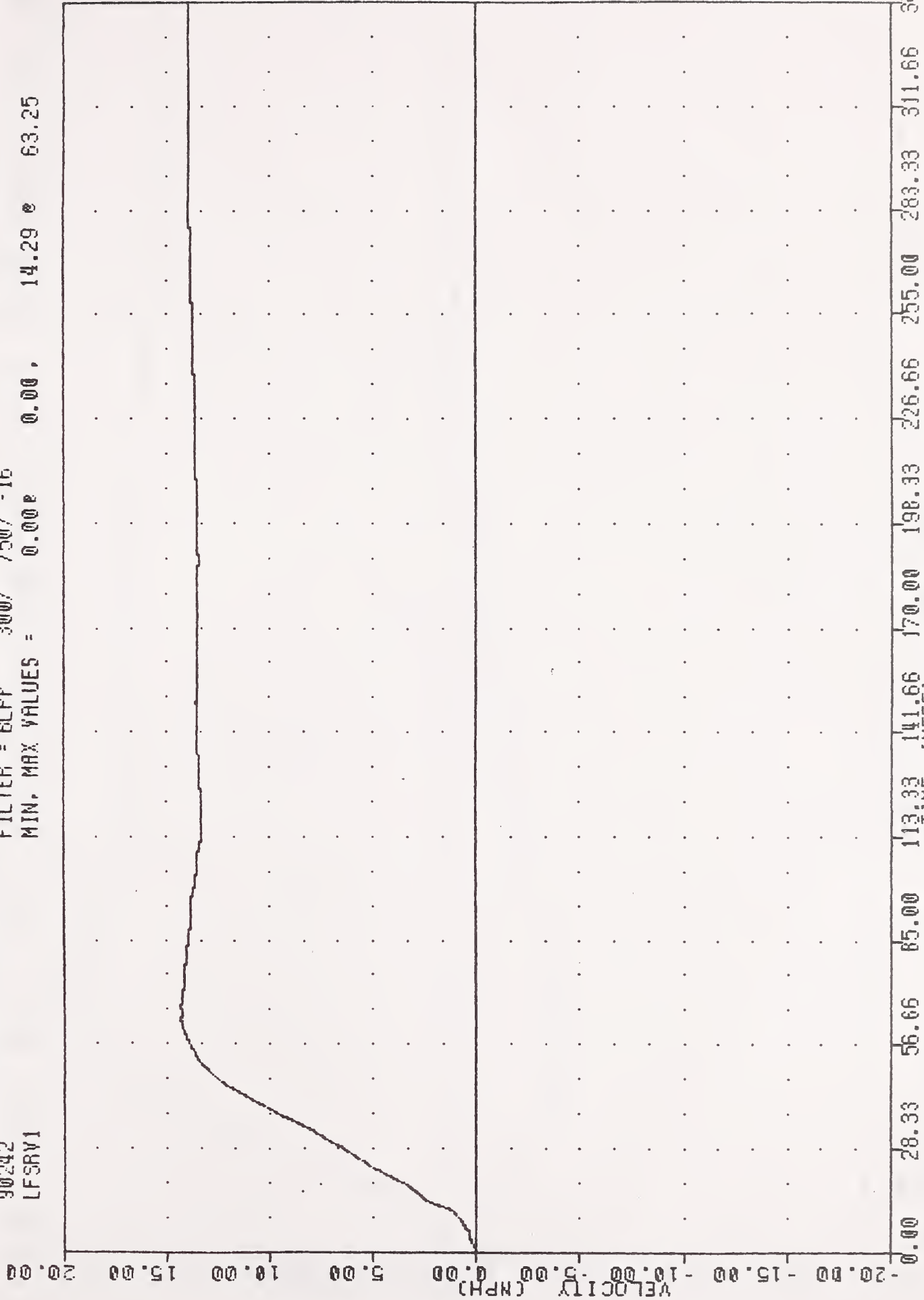
20.00
 15.00
 10.00
 5.00
 0.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 LEFT FRONT SILL Y-AXIS VELOCITY

900030-3 , TBC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSRV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00, 14.29, 63.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH *3
 LEFT FRONT SILL RESULTANT VELOCITY

900030-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSXV1

FILTER = BLFP 300/ 750/ -16
 MIN, MAX VALUES = -18.13e 70.50, 0.00 e 0.00

20.00

15.00

10.00

5.00

0.00

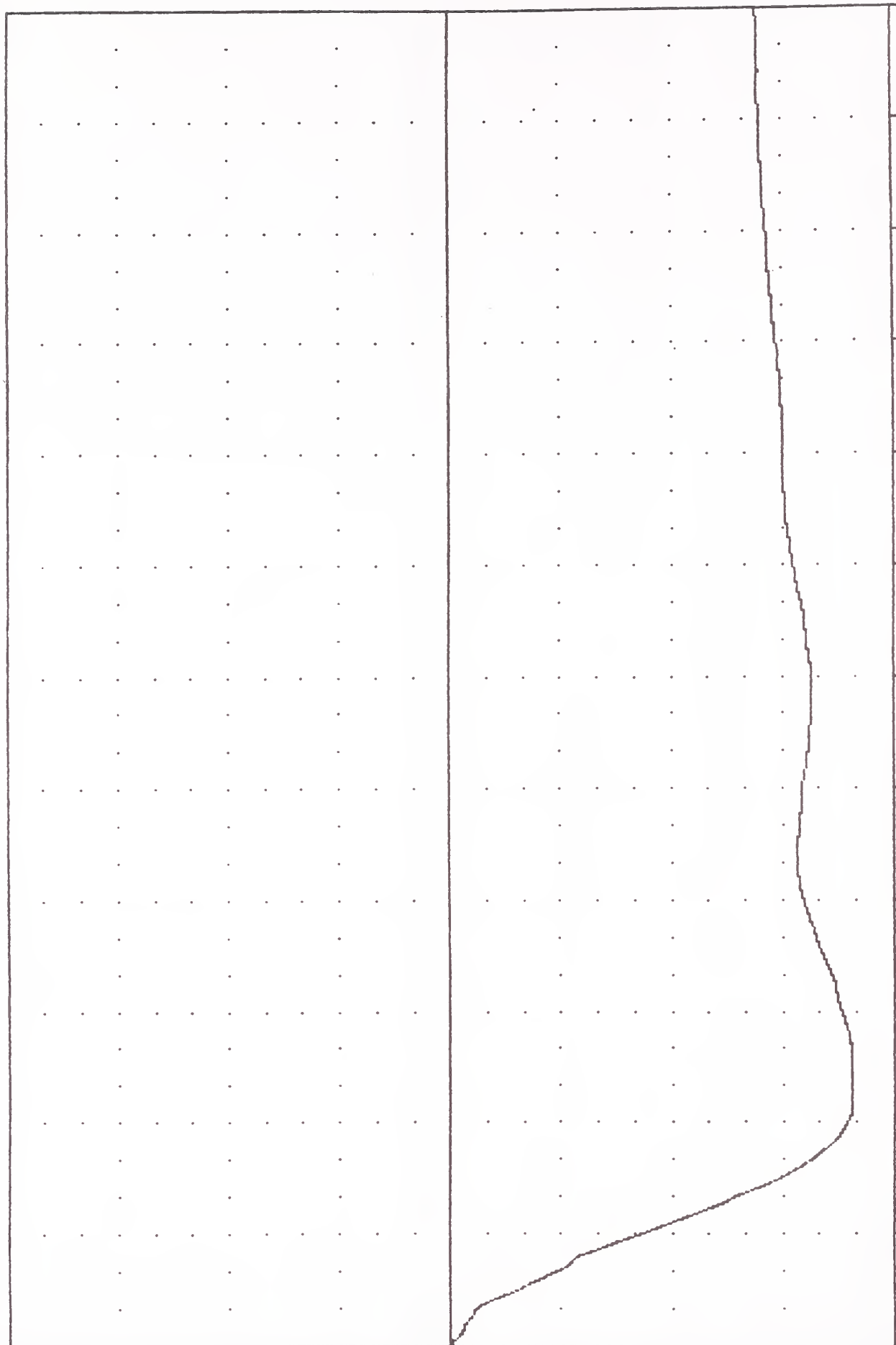
VELOCITY (MPH)

-5.00

-10.00

-15.00

-20.00



0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

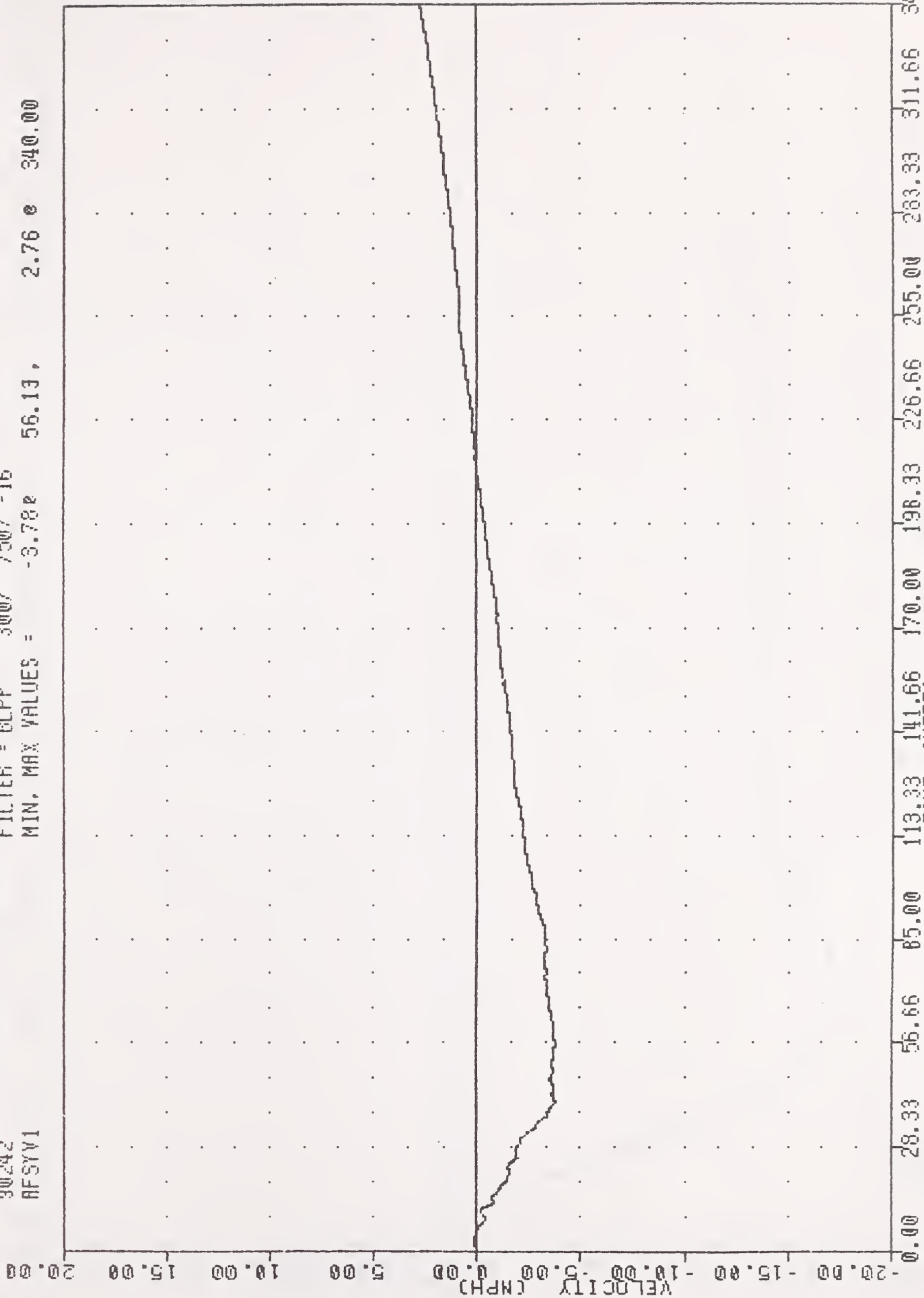
340.00

TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 RIGHT FRONT SILL X-AXIS VELOCITY

900630-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSYV1

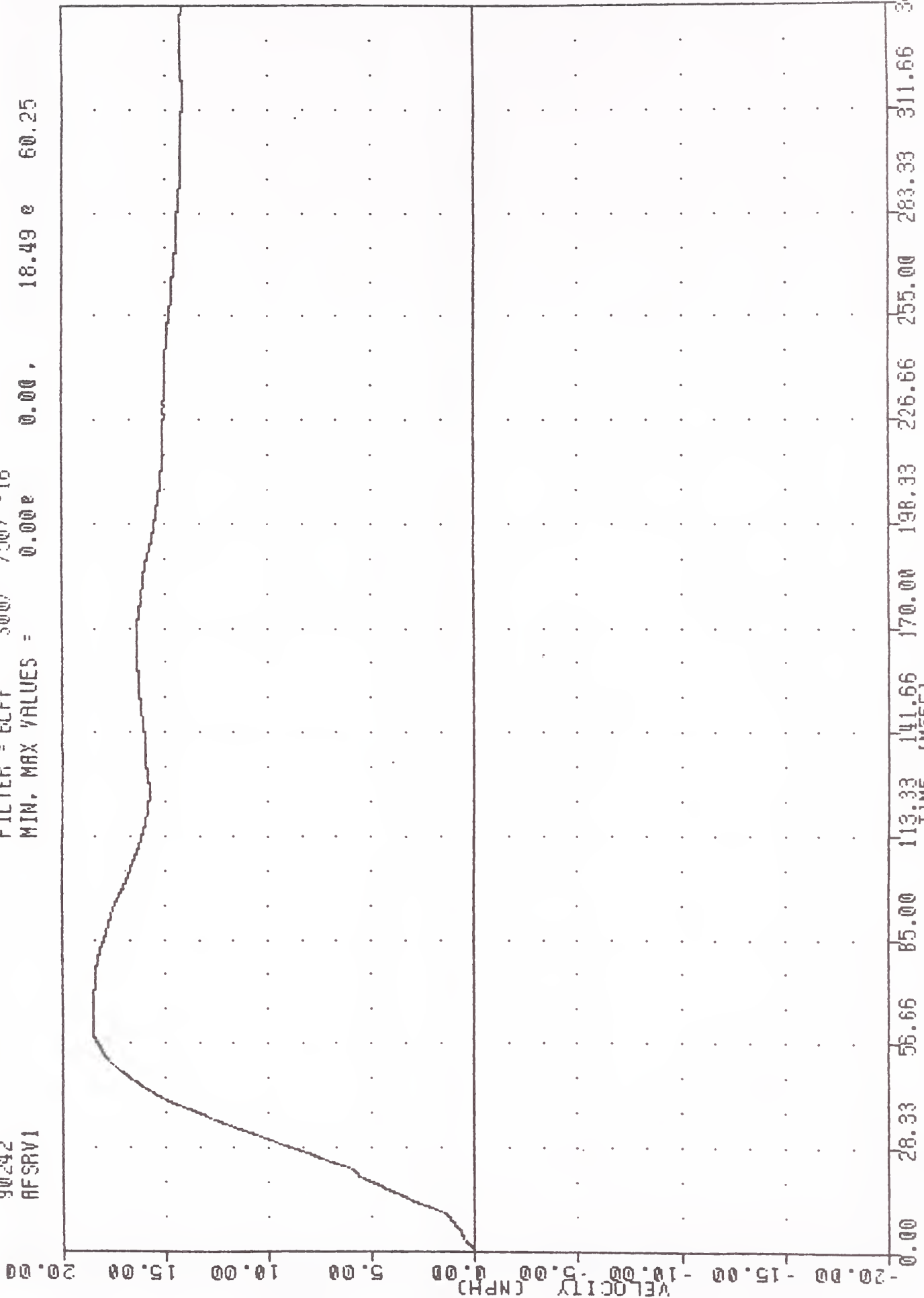
FILTER = GLPP 300/ 750/ -16
 MIN. MAX VALUES = -3.782 56.13, 2.76 340.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 RIGHT FRONT SILL Y-AXIS VELOCITY

900830-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSRV1

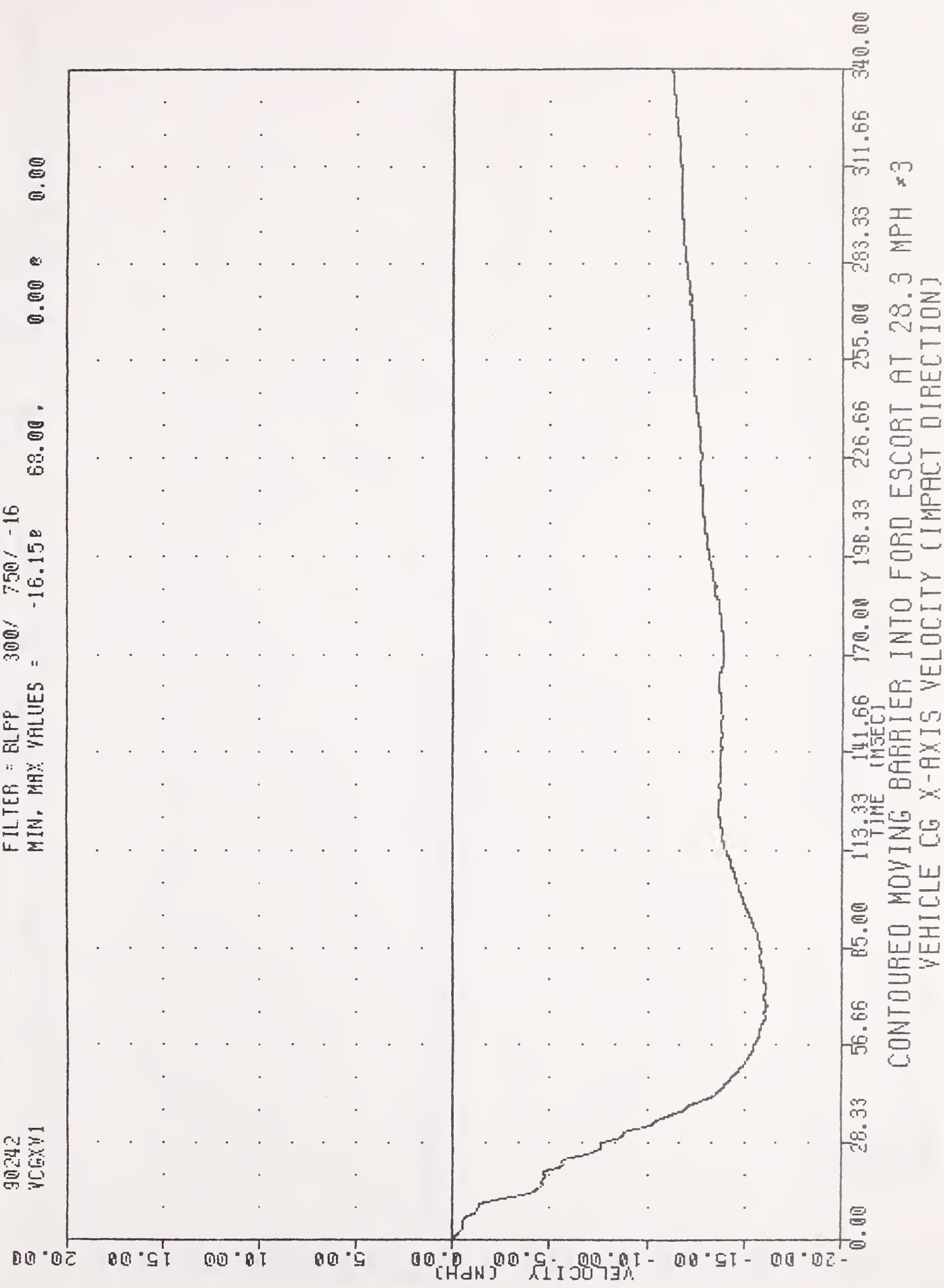
FILTER = ELPF 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00, 18.49 e 60.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 RIGHT FRONT SILL RESULTANT VELOCITY

900030-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -16.15e 68.00, 0.00 e 0.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH *3
 VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900830-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.00e 18.38 , 4.10 e 340.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

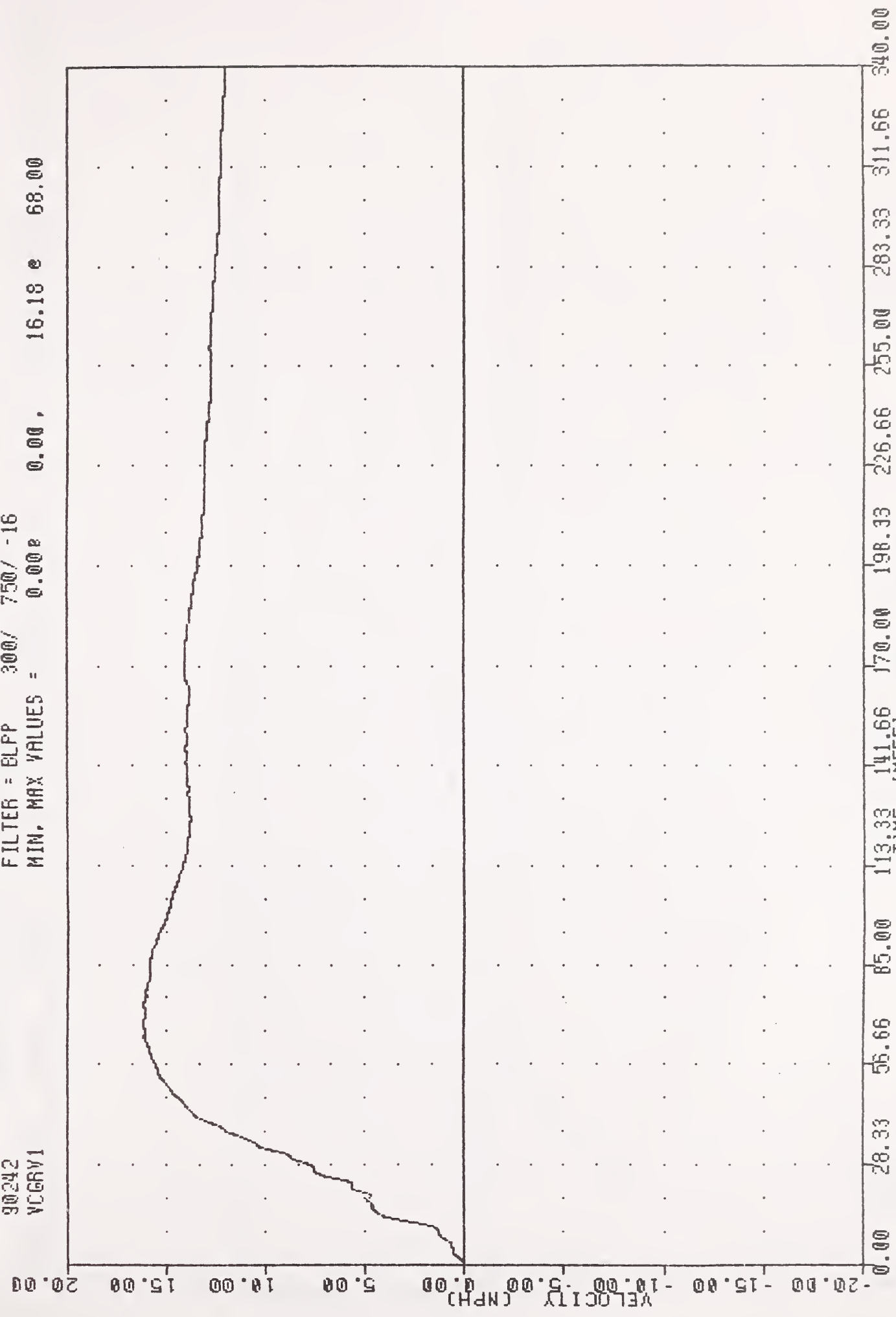
311.66

340.00

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

300830-3 TRC
 CRASH III DAMAGE ALGORITHM
 30242
 VCGRY1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00, 16.18 e 68.00

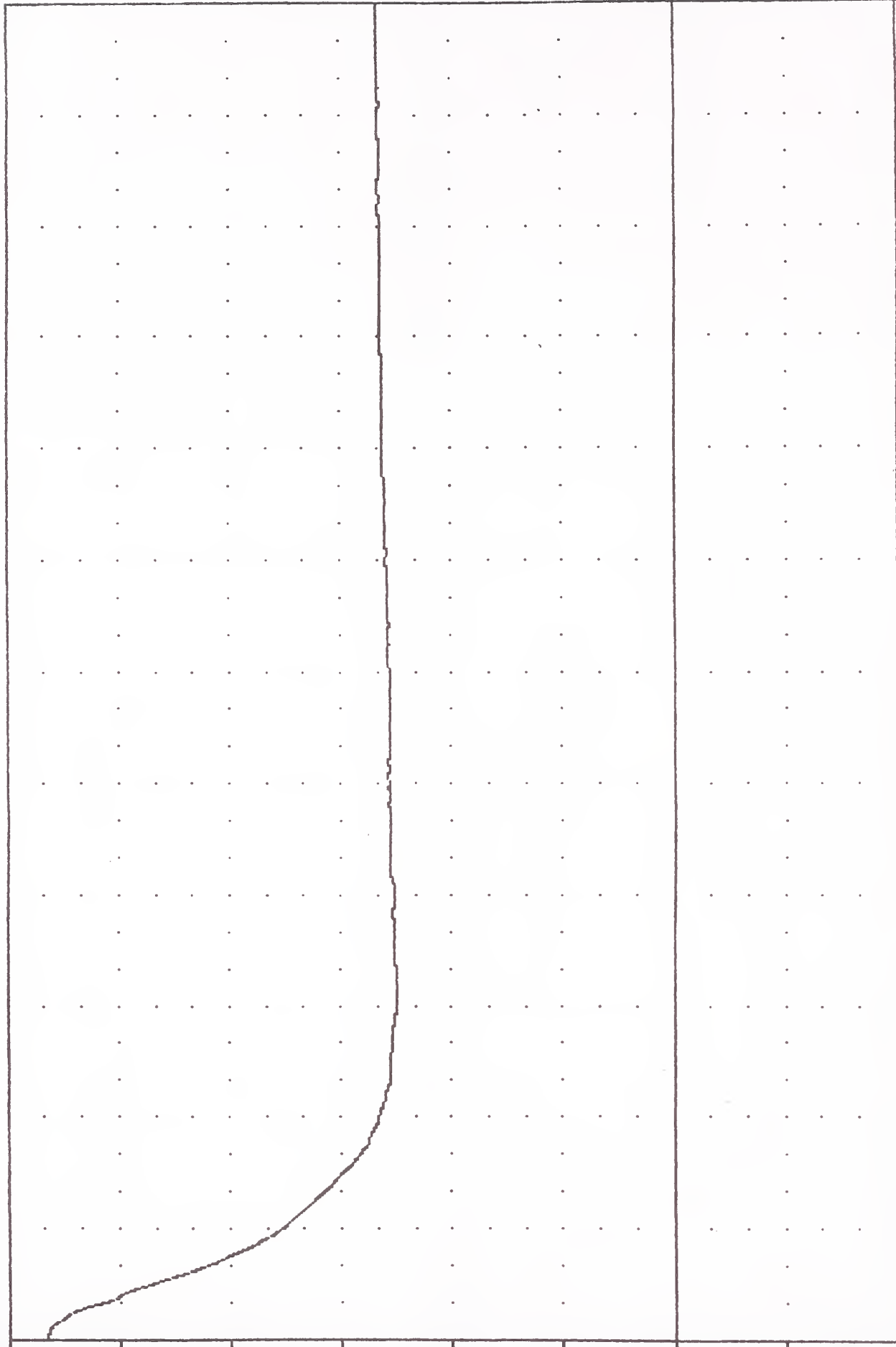


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH ±3
 VEHICLE CG RESULTANT VELOCITY

900830-3 , TAC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXV

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 12.44e 90.38e 28.30e 0.00

30.00
 25.00
 20.00
 15.00
 10.00
 5.00
 0.00
 -5.00
 -10.00
 VELOCITY (MPH)



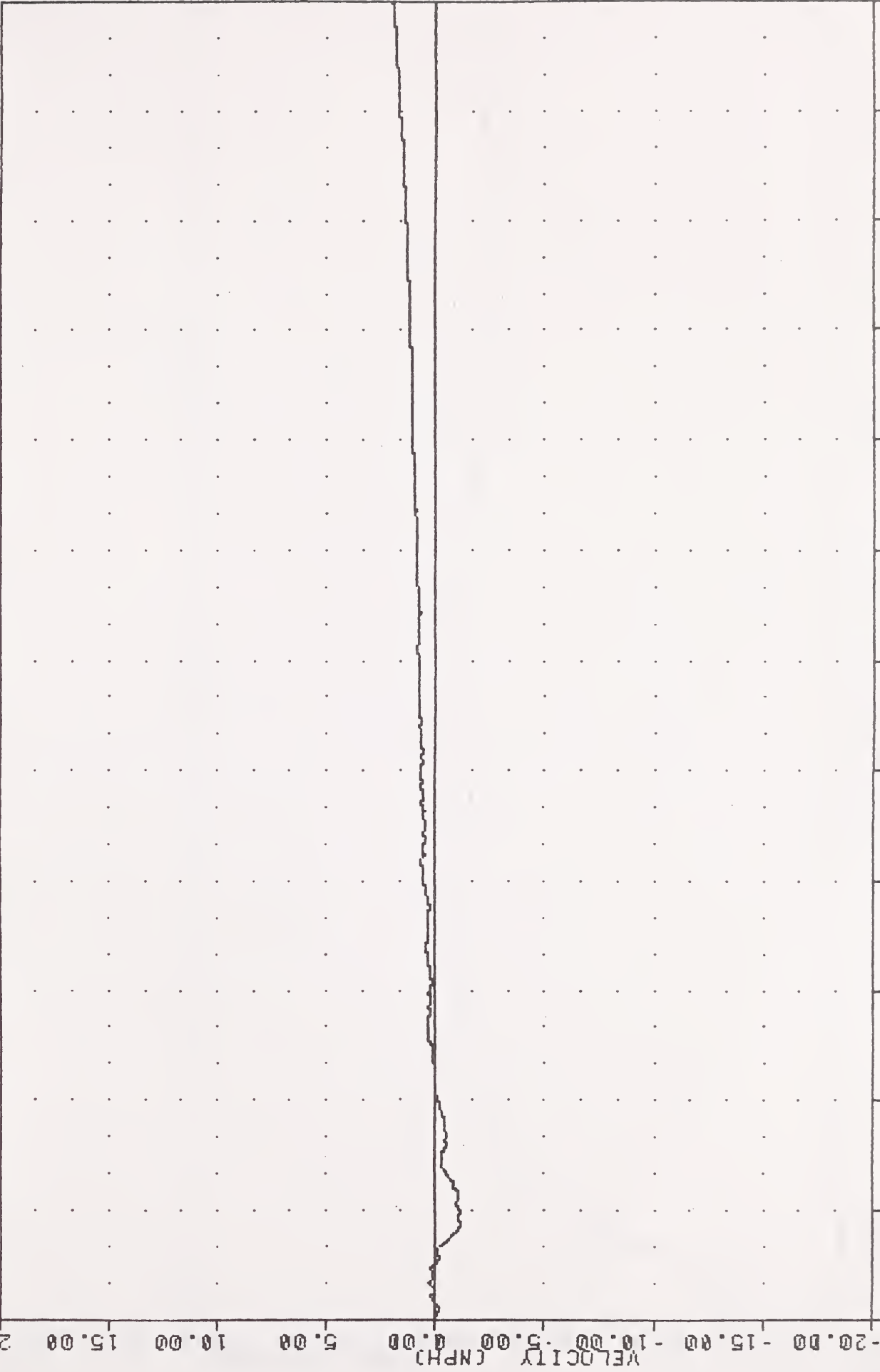
0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH *3
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

900834-3 , TAC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGYV

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.11e 27.88, 1.99 e 340.00

20.00

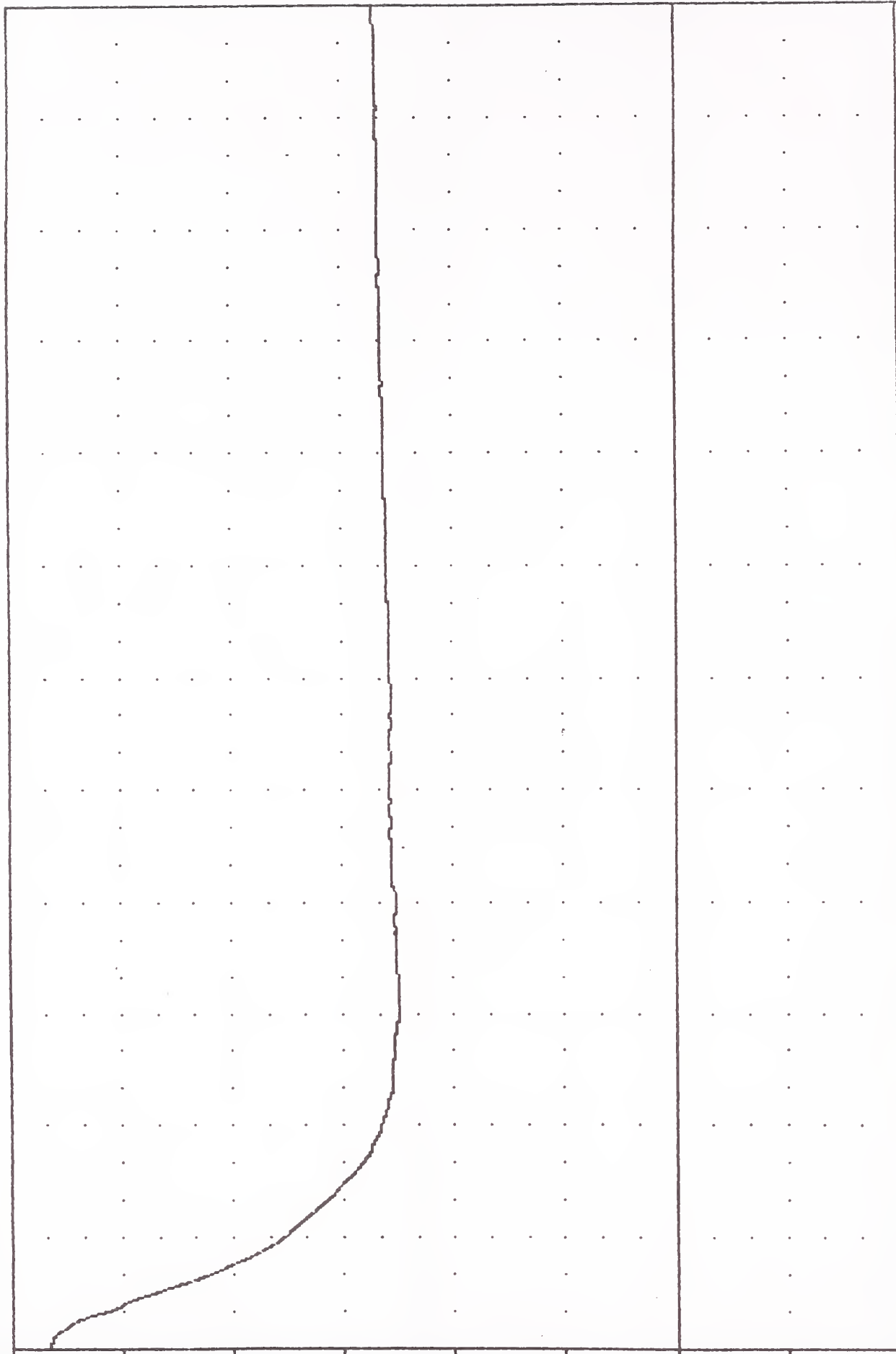


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

900830-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRV

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 12.44e 90.33e 28.30e 0.00

30.00
 25.00
 20.00
 15.00
 10.00
 5.00
 0.00
 -5.00
 -10.00
 -15.00
 -20.00
 -25.00
 -30.00

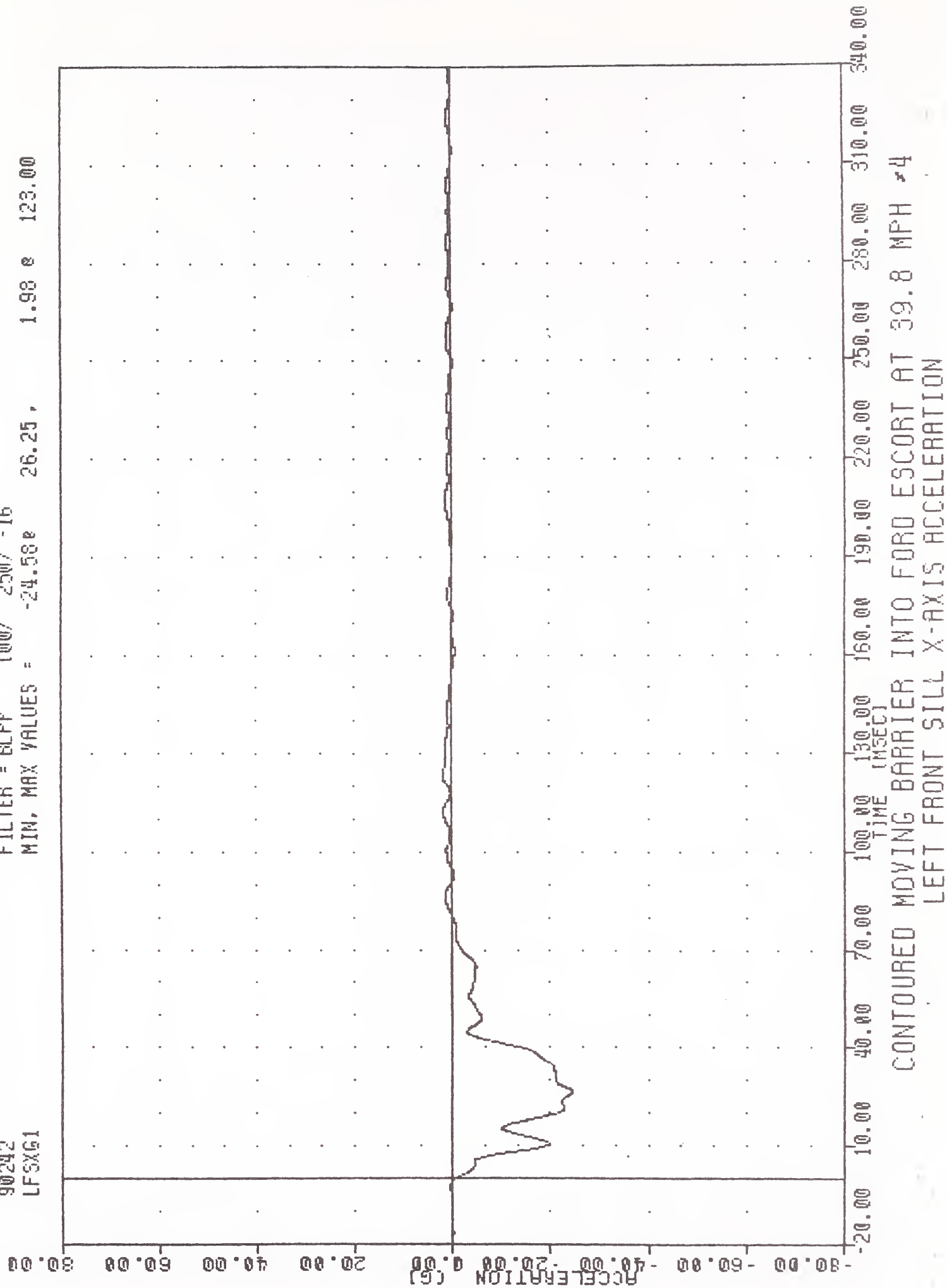


CONTOURED MOVING BARRIER INTO FORD ESCORT AT 28.3 MPH #3
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

TEST #900830-4

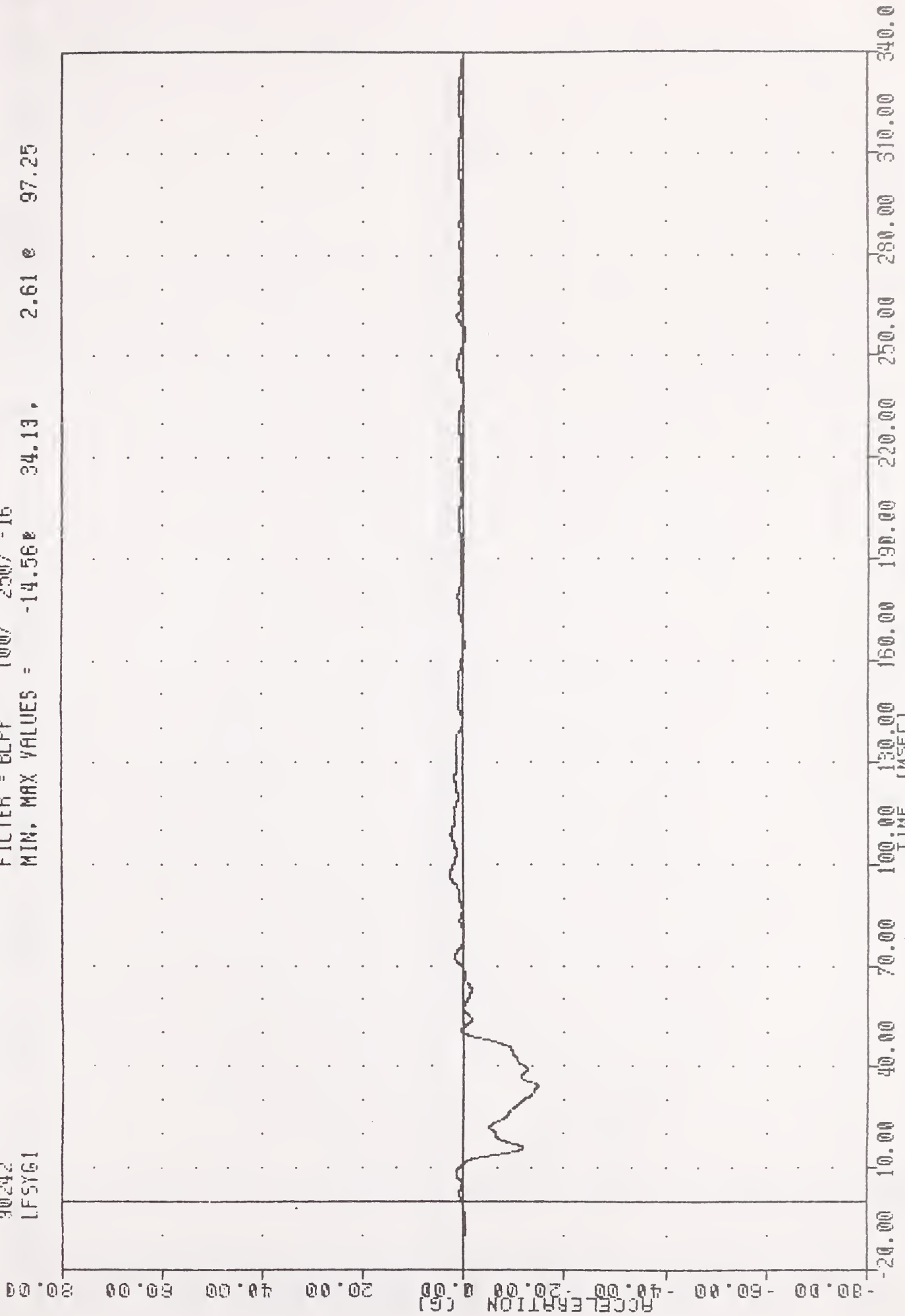
900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSX61

FILTER = BLPF 100/ 250/ -16
 MIN, MAX VALUES = -24.58e 26.25, 1.98 e 123.00



900330+4 .TAC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSYG1

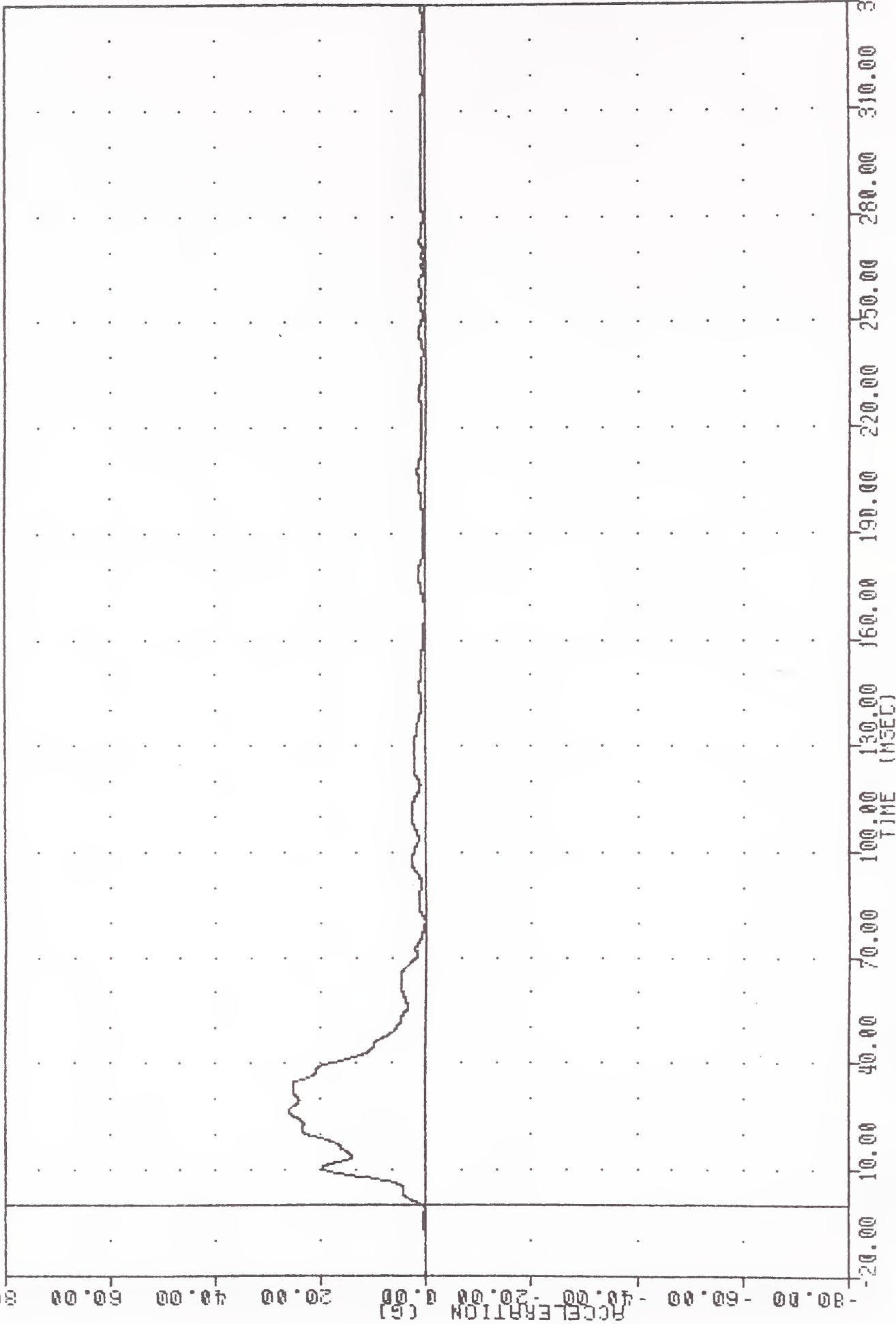
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -14.56 34.13 2.61 97.25



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH ±4
 LEFT FRONT SILL Y-AXIS ACCELERATION

900030-4 , TRC
CRASH III DAMAGE ALGORITHM
90242
LFSRG1

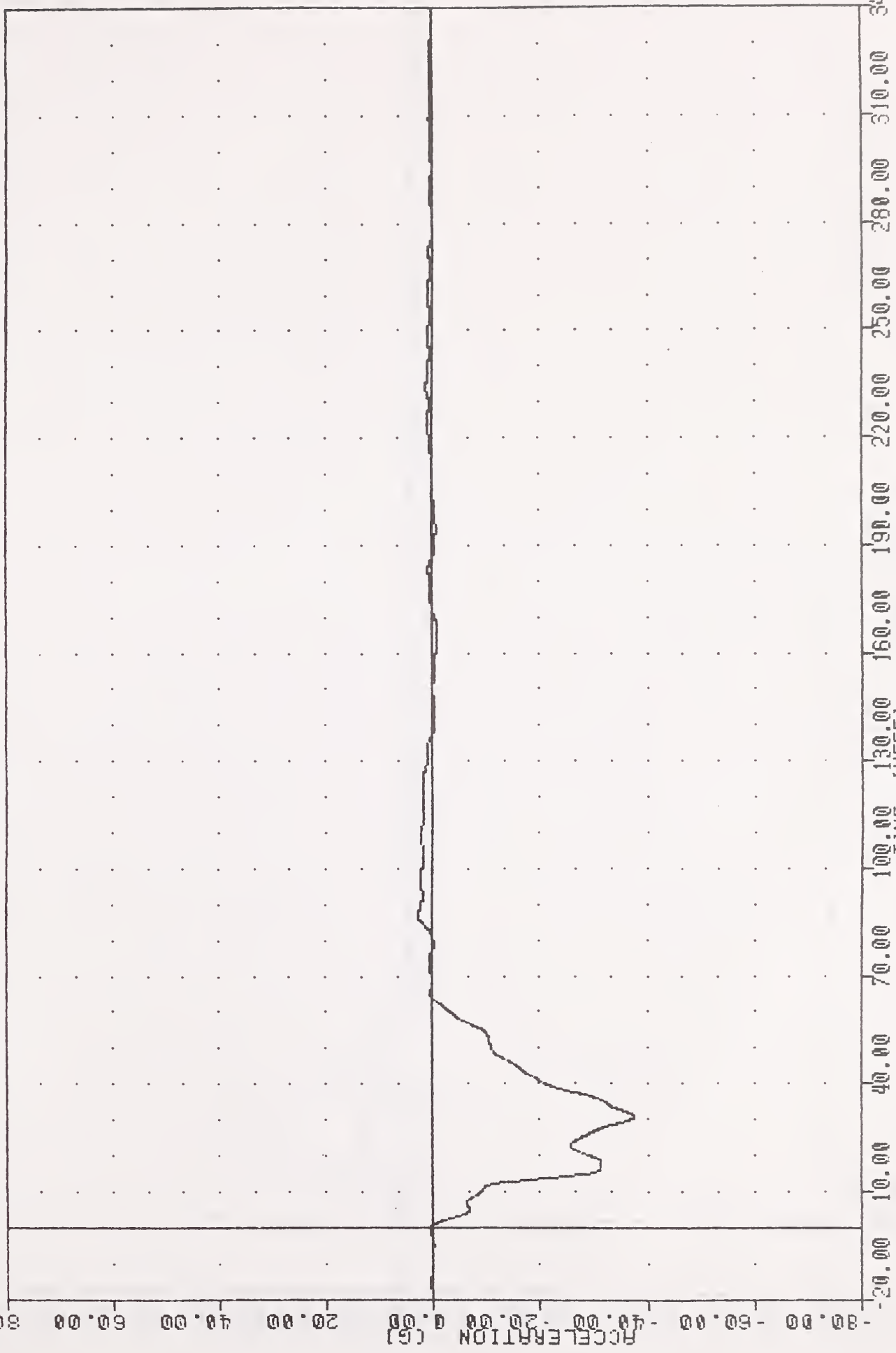
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.03e -14.13, 26.15 e 26.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
LEFT FRONT SILL RESULTANT ACCELERATION

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSXG1

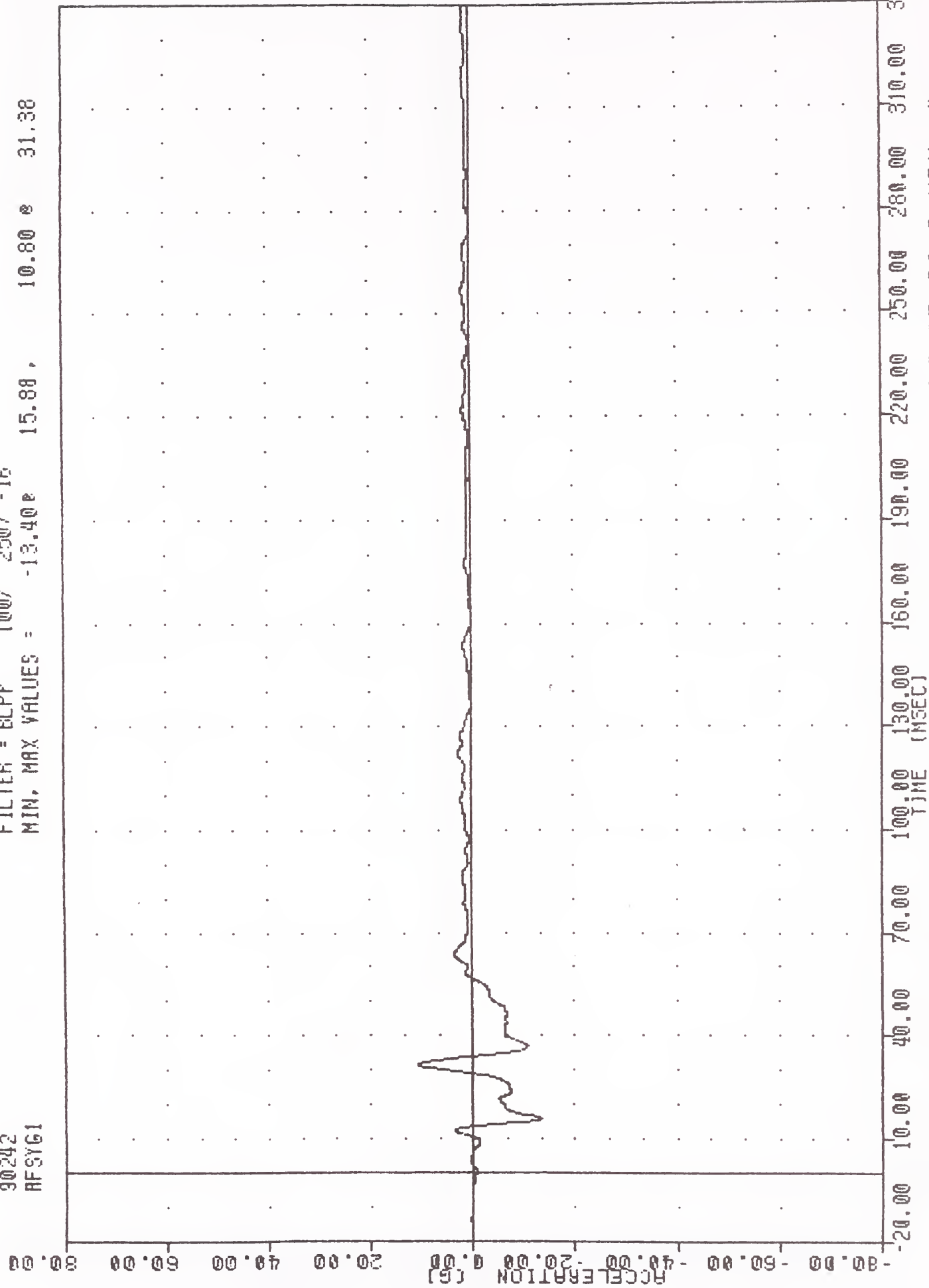
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -37.800 30.75 , 2.84 0 86.75



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH ±4
 RIGHT FRONT SILL X-AXIS ACCELERATION

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 RFSYG1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -13.400 15.88, 10.80 31.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 RIGHT FRONT SILL Y-AXIS ACCELERATION

900230-4 , TRC

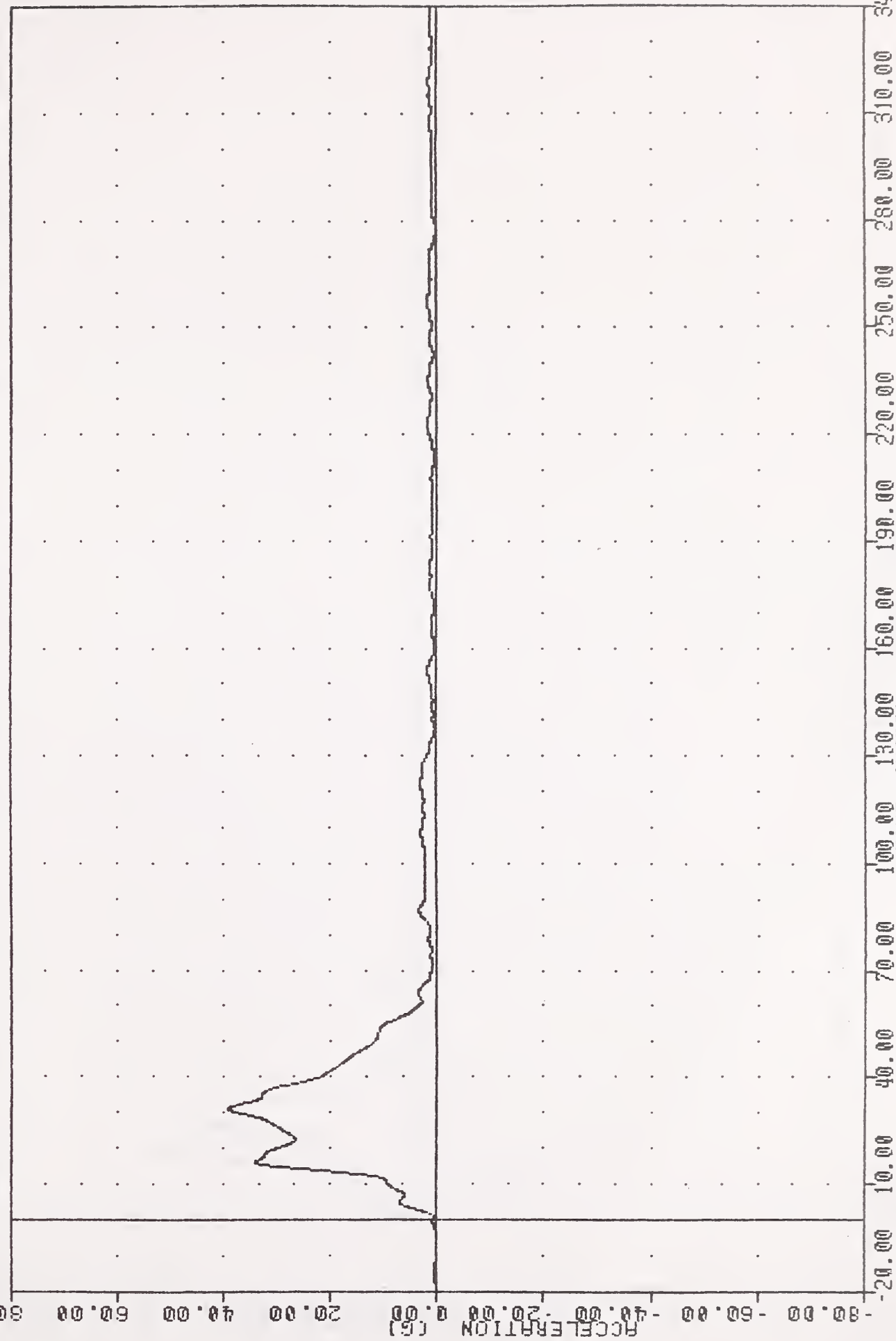
CRASH III DAMAGE ALGORITHM

90242

AFSRG1

FILTER = BLPP 100/ 250/ -16

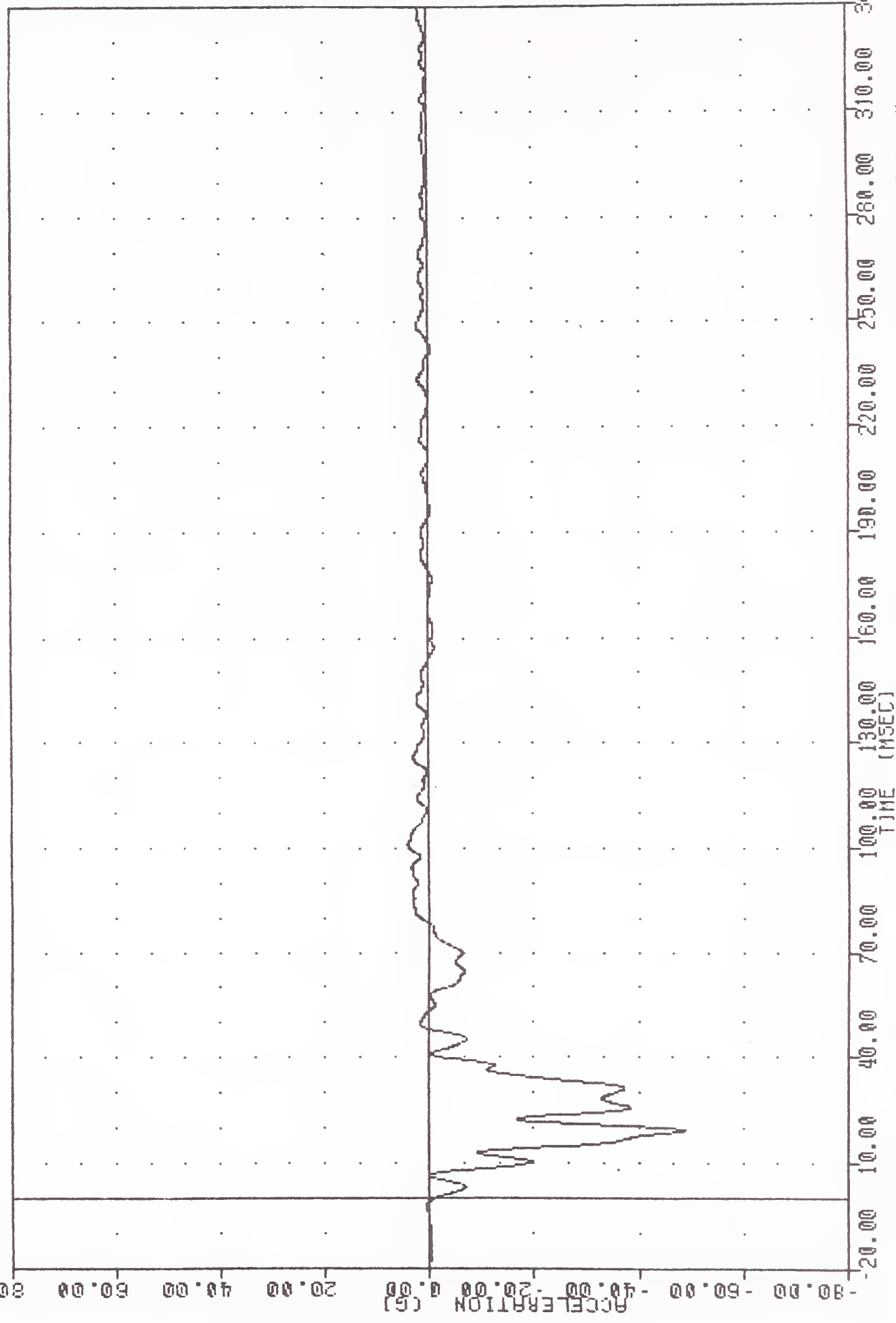
MIN. MAX VALUES = 0.000 -20.00 , 39.08 0 31.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
RIGHT FRONT SILL RESULTANT ACCELERATION

900830-4 , TRC
CRASH III DAMAGE ALGORITHM
90242
VCGXG1

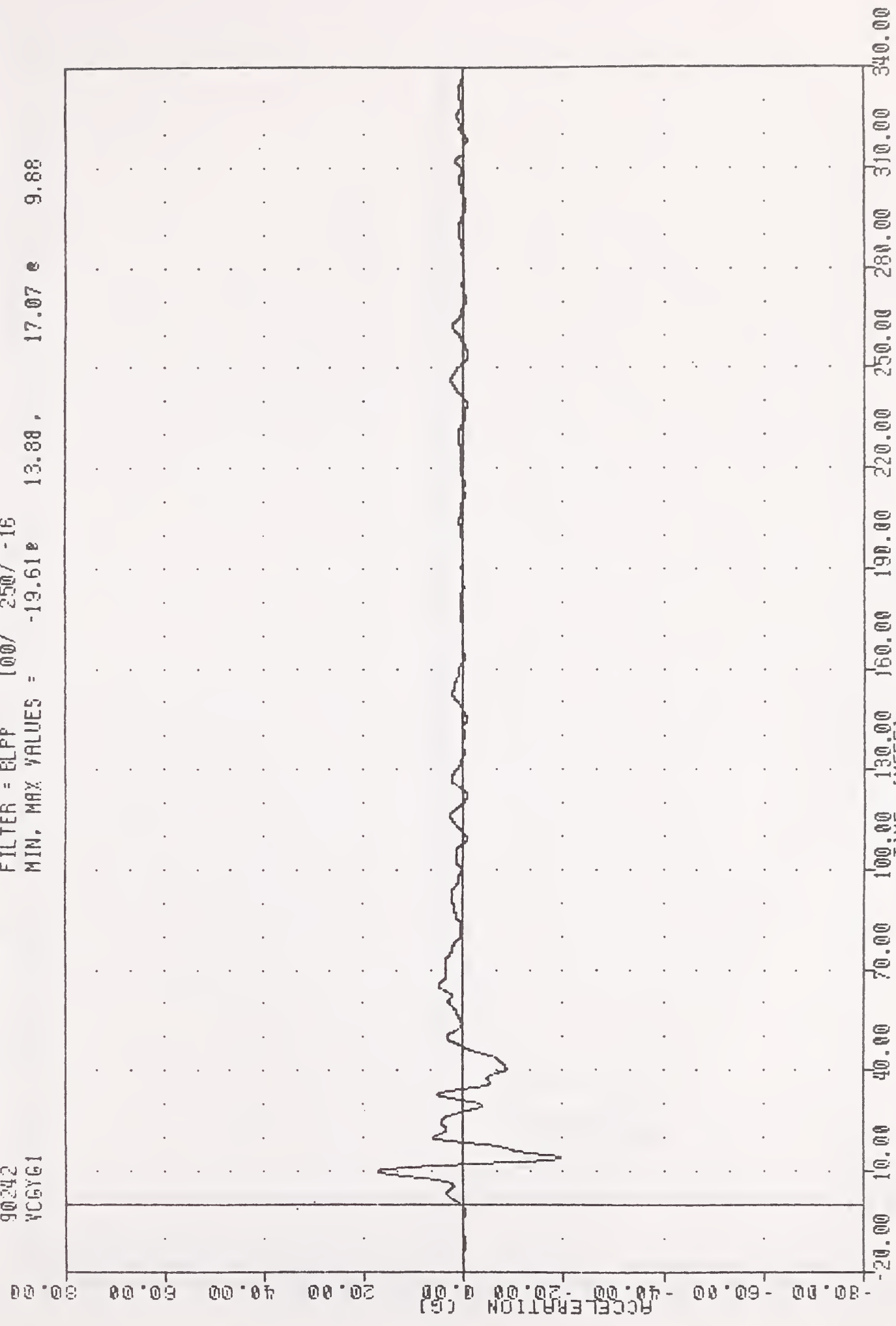
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -48.91e 19.38, 4.15 e 100.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 WCCY61

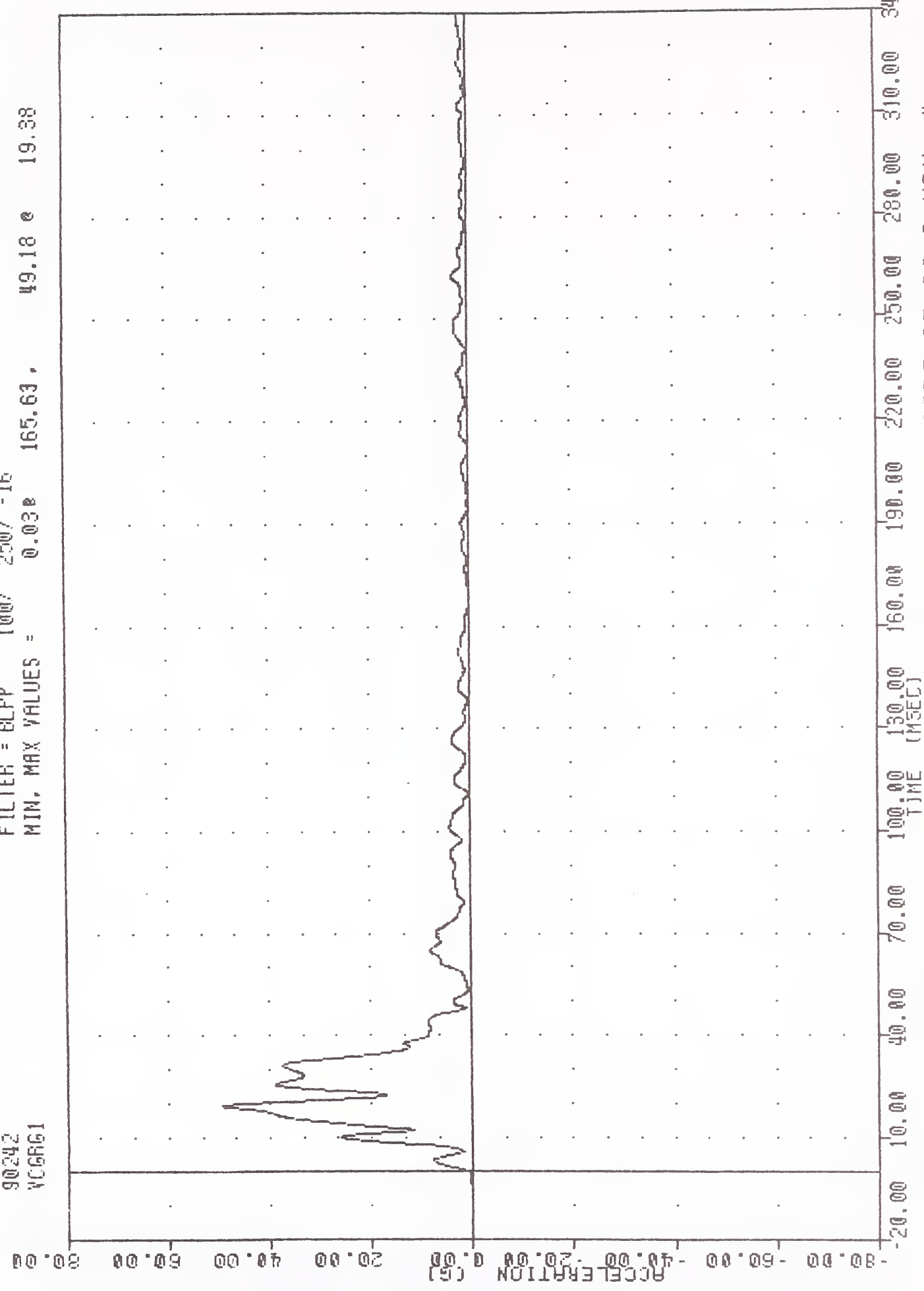
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -19.61e 13.88, 17.07 e 9.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

900030-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGRG1

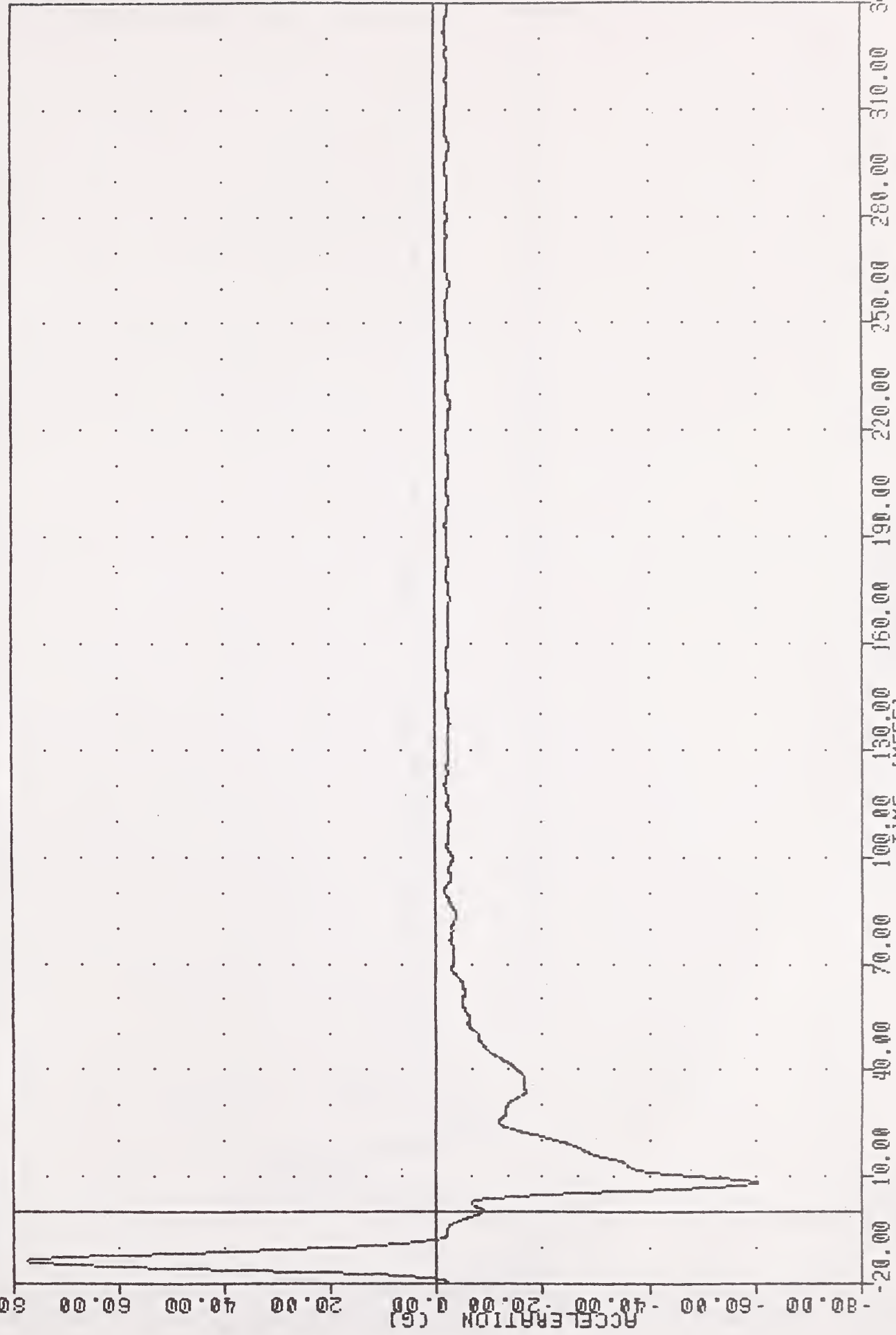
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.038 165.63 , 49.18 e 19.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 VEHICLE C6 RESULTANT ACCELERATION

900830-4
 CRASH III DAMAGE ALGORITHM
 90242
 BCCXG

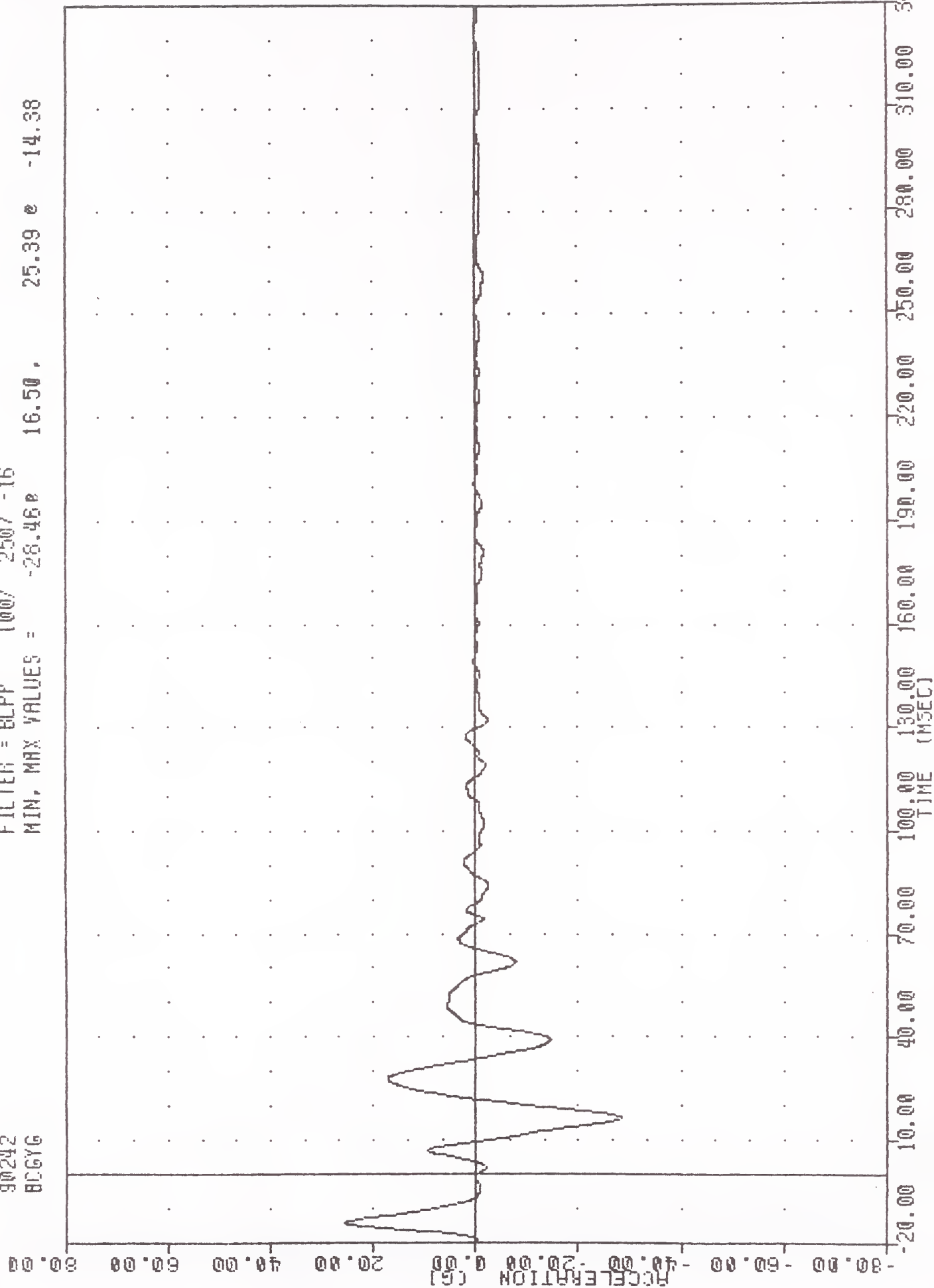
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -60.62 8.13, 77.49 e -13.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

900830-4 . TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BDCYG

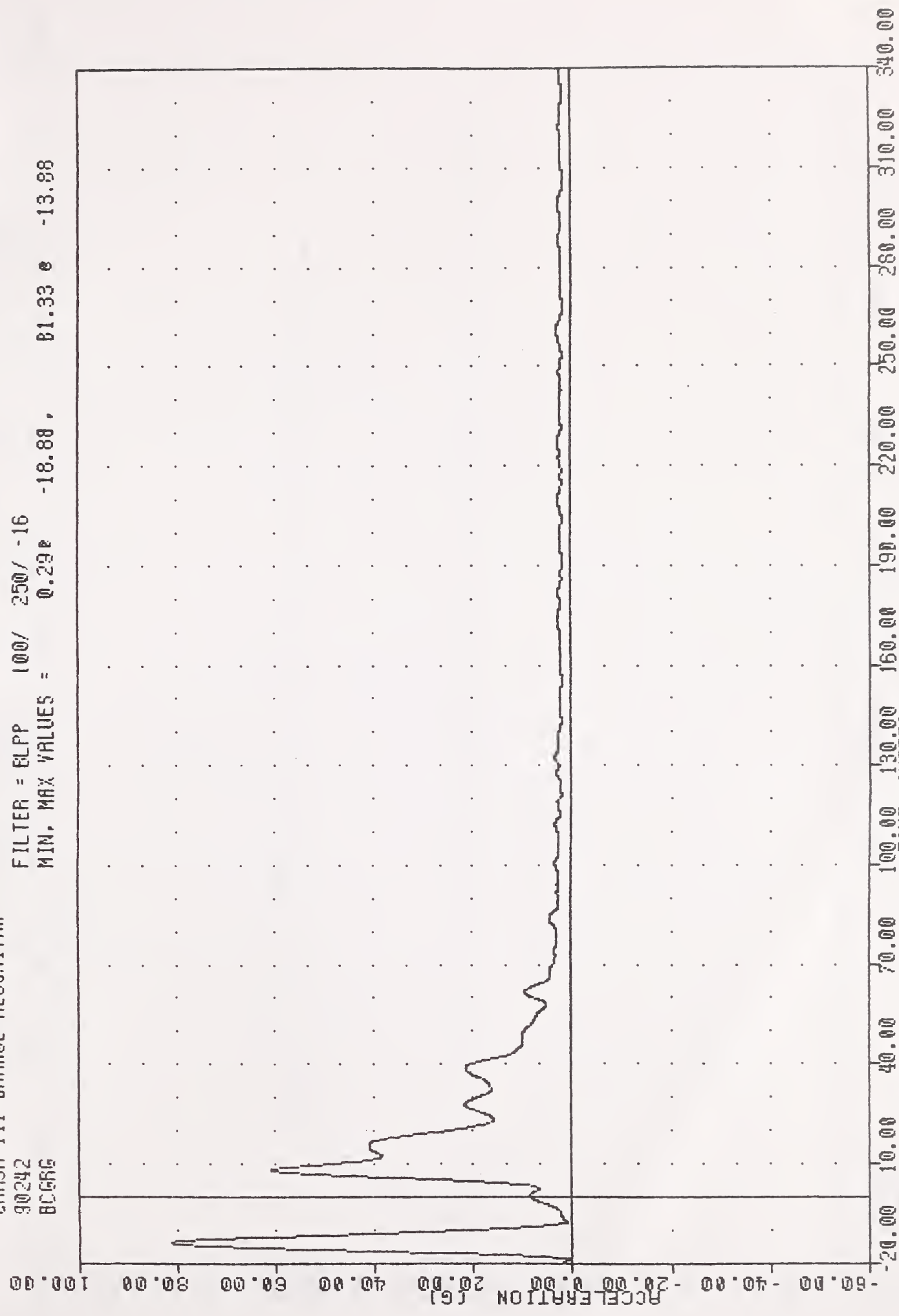
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -28.46 16.50, 25.39 25.39 e -14.38



CONToured MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900030-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGRG

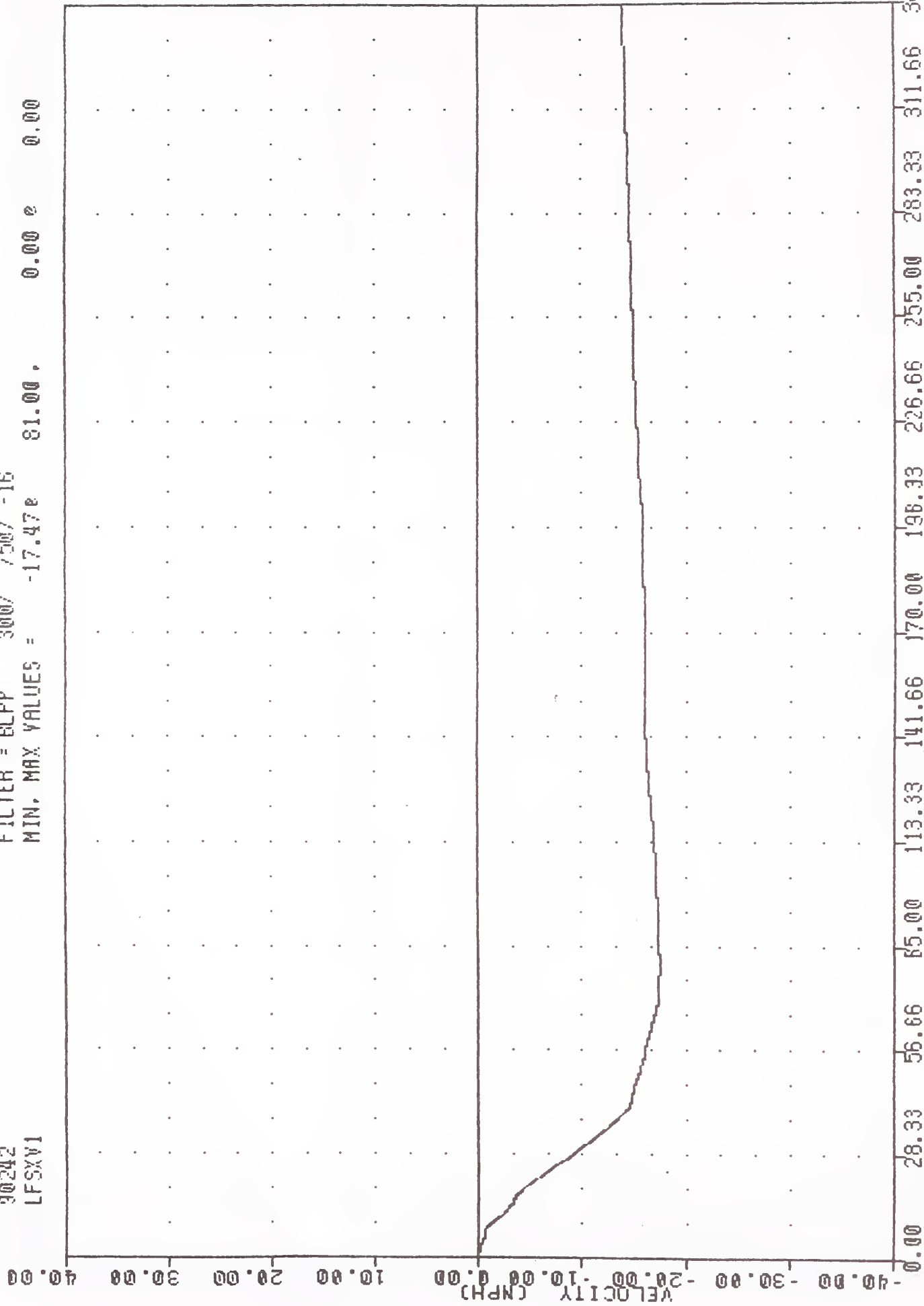
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.29E -18.88, B1.33 E -13.88



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 LFSXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -17.47e 81.00, 0.00 e 0.00

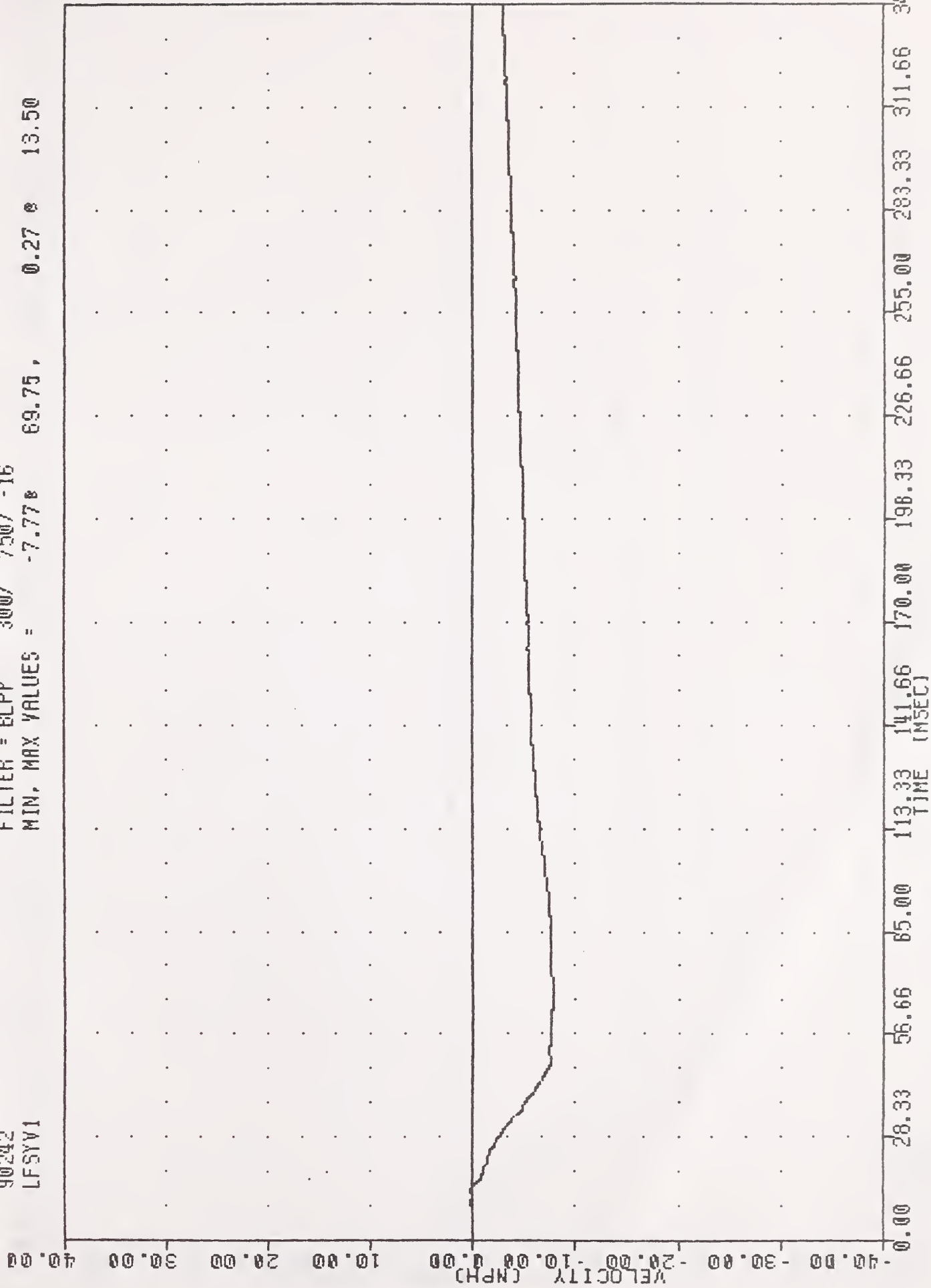


B90

CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH *4
 LEFT FRONT SILL X-AXIS VELOCITY

300000-4
 CRASH III DAMAGE ALGORITHM
 90242
 LFSYV1

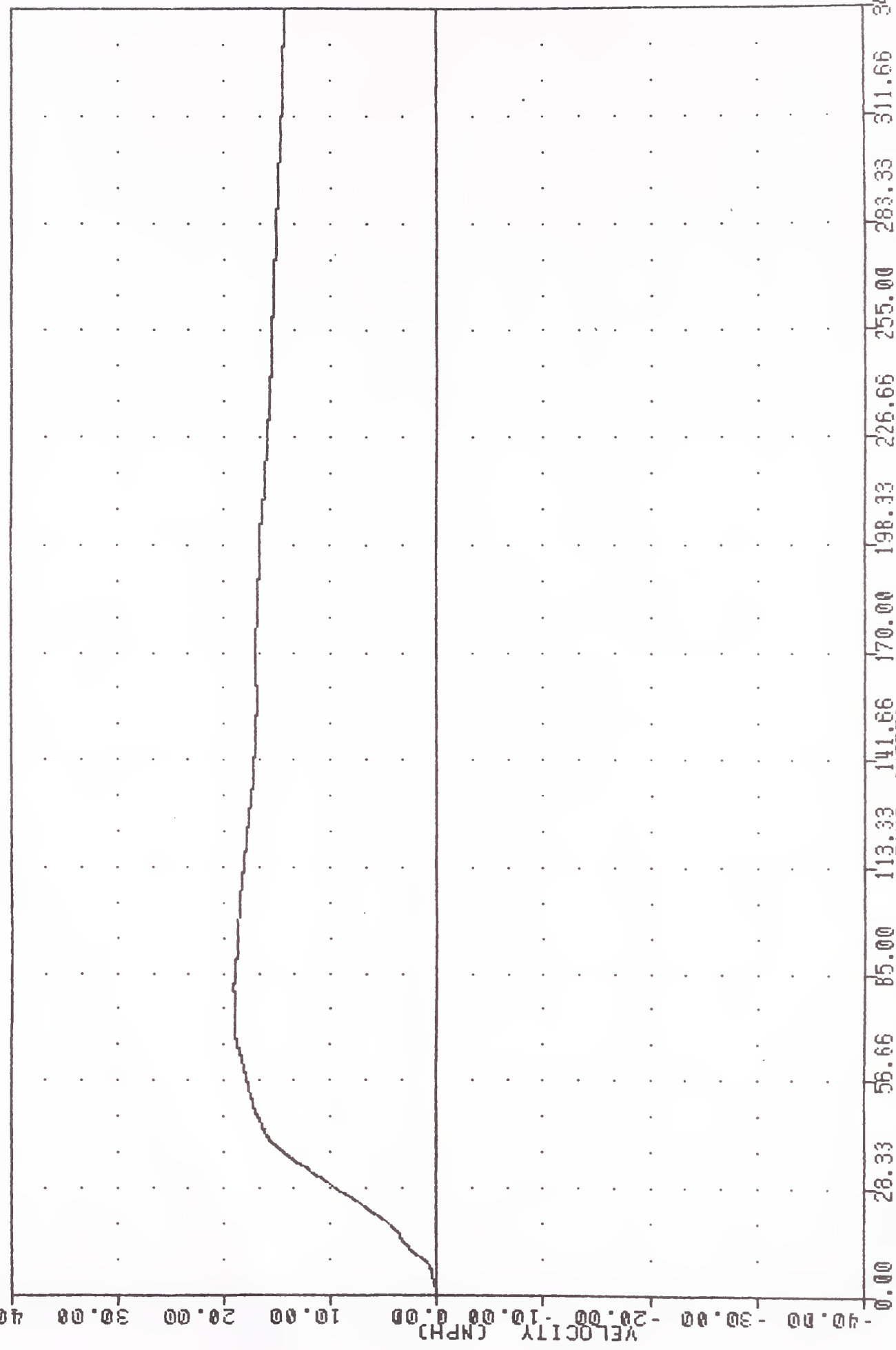
FILTER = ELPP 300/ 750/ -16
 MIN, MAX VALUES = -7.77 69.75, 0.27 13.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 LEFT FRONT SILL Y-AXIS VELOCITY

900330-4 , TRC
 CASH III DAMAGE ALGORITHM
 90242
 LFSRV1

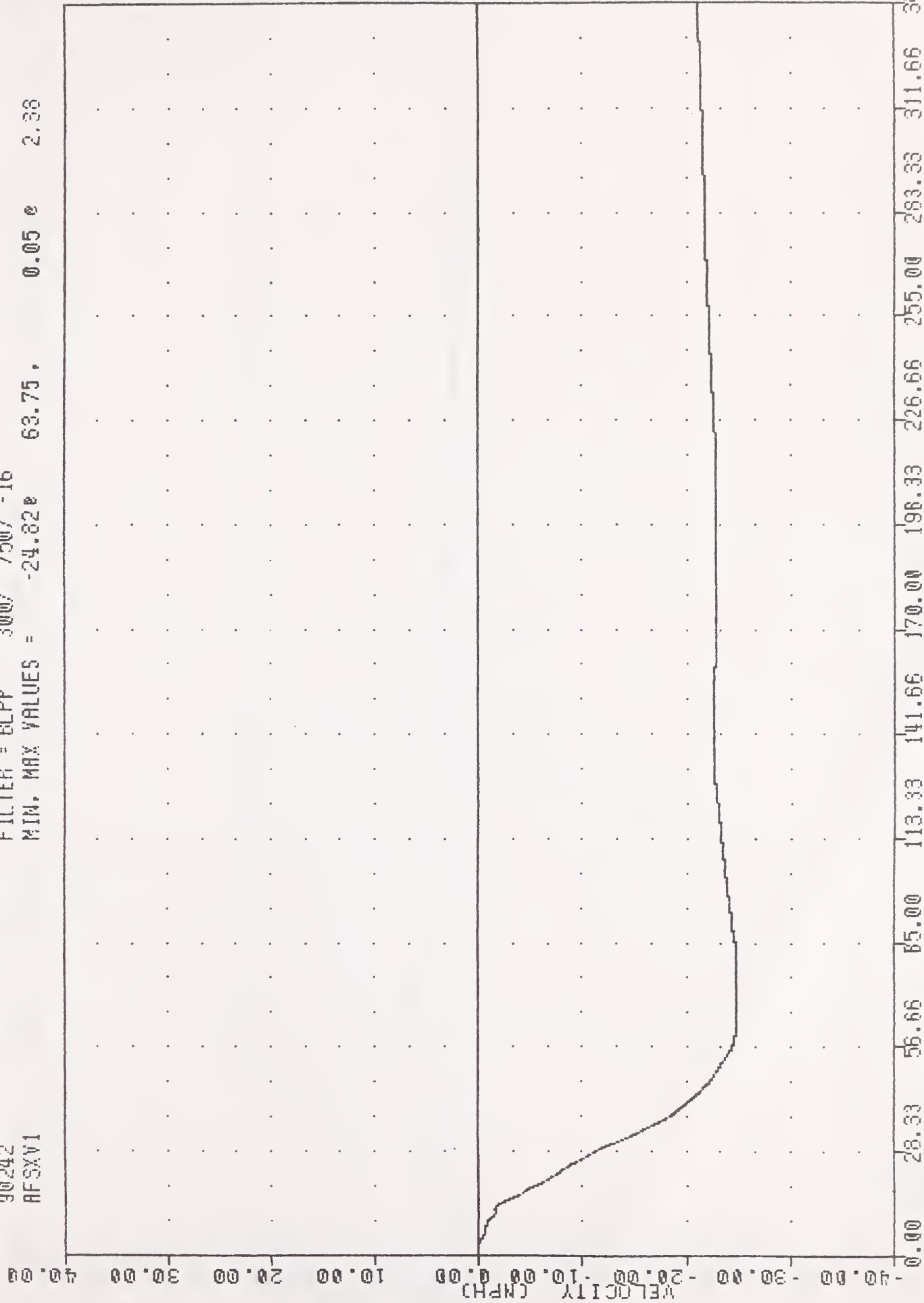
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00, 19.05 e 81.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 LEFT FRONT SILL RESULTANT VELOCITY

900030-4 TAD
 CRASH III DAMAGE ALGORITHM
 90242
 AFSXV1

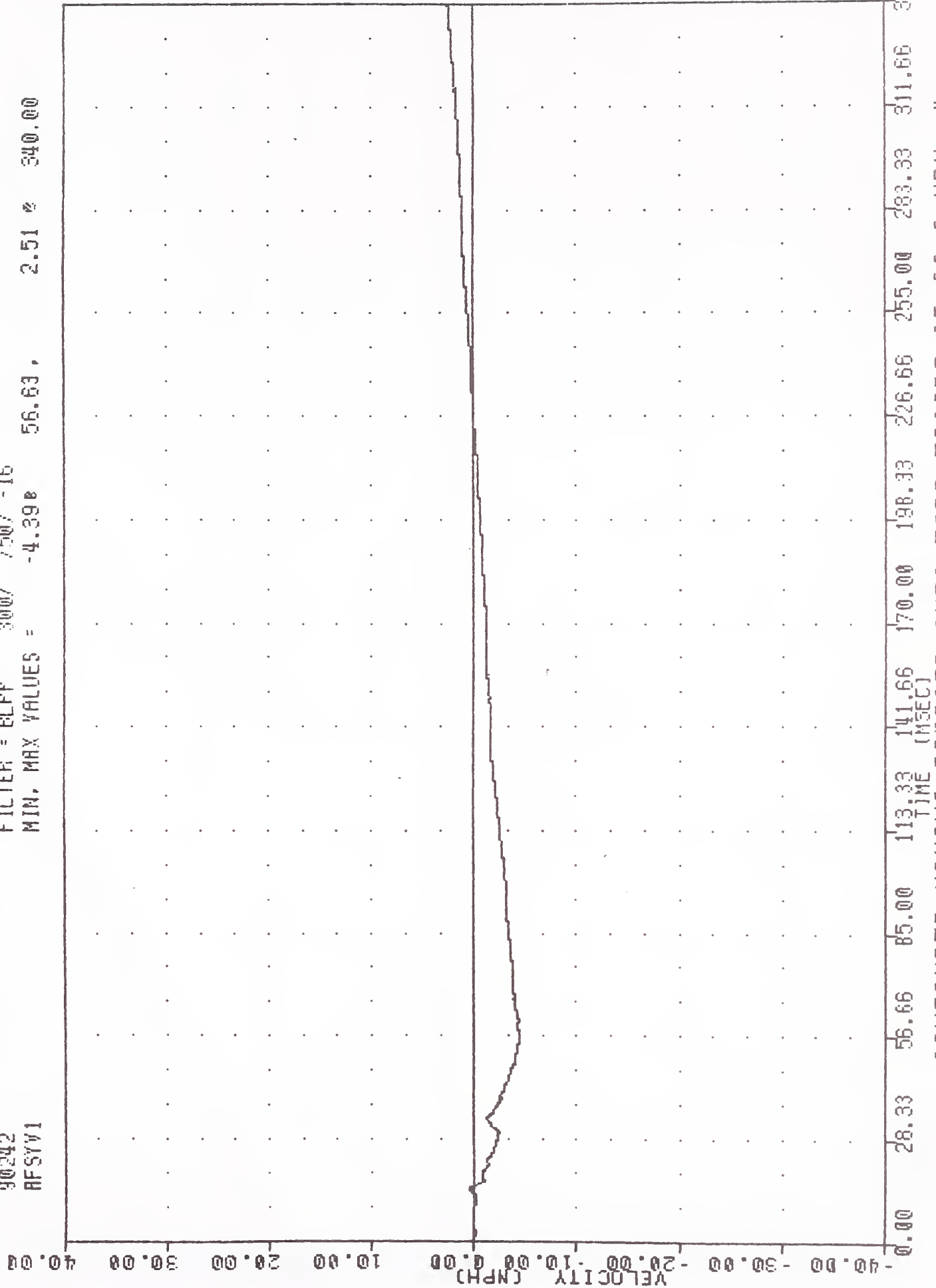
FILTER = ELPP 300/ 750/ -16
 MIN. MAX VALUES = -24.82 63.75 0.05 2.38



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH *4
 RIGHT FRONT SILL X-AXIS VELOCITY

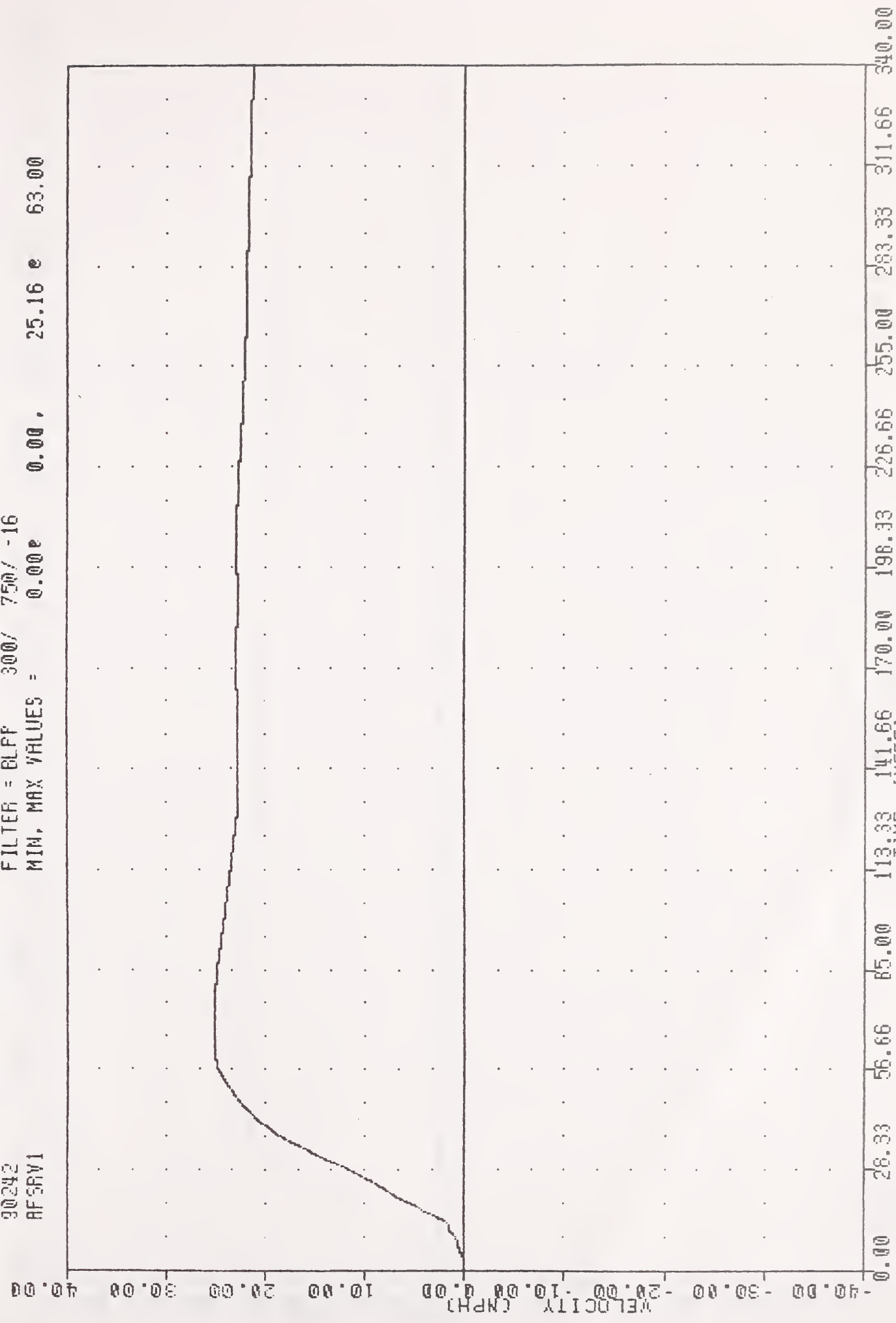
900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -4.398 56.63, 2.51 340.00



900830-4 , TAC
 CRASH III DAMAGE ALGORITHM
 90242
 AFSRV1

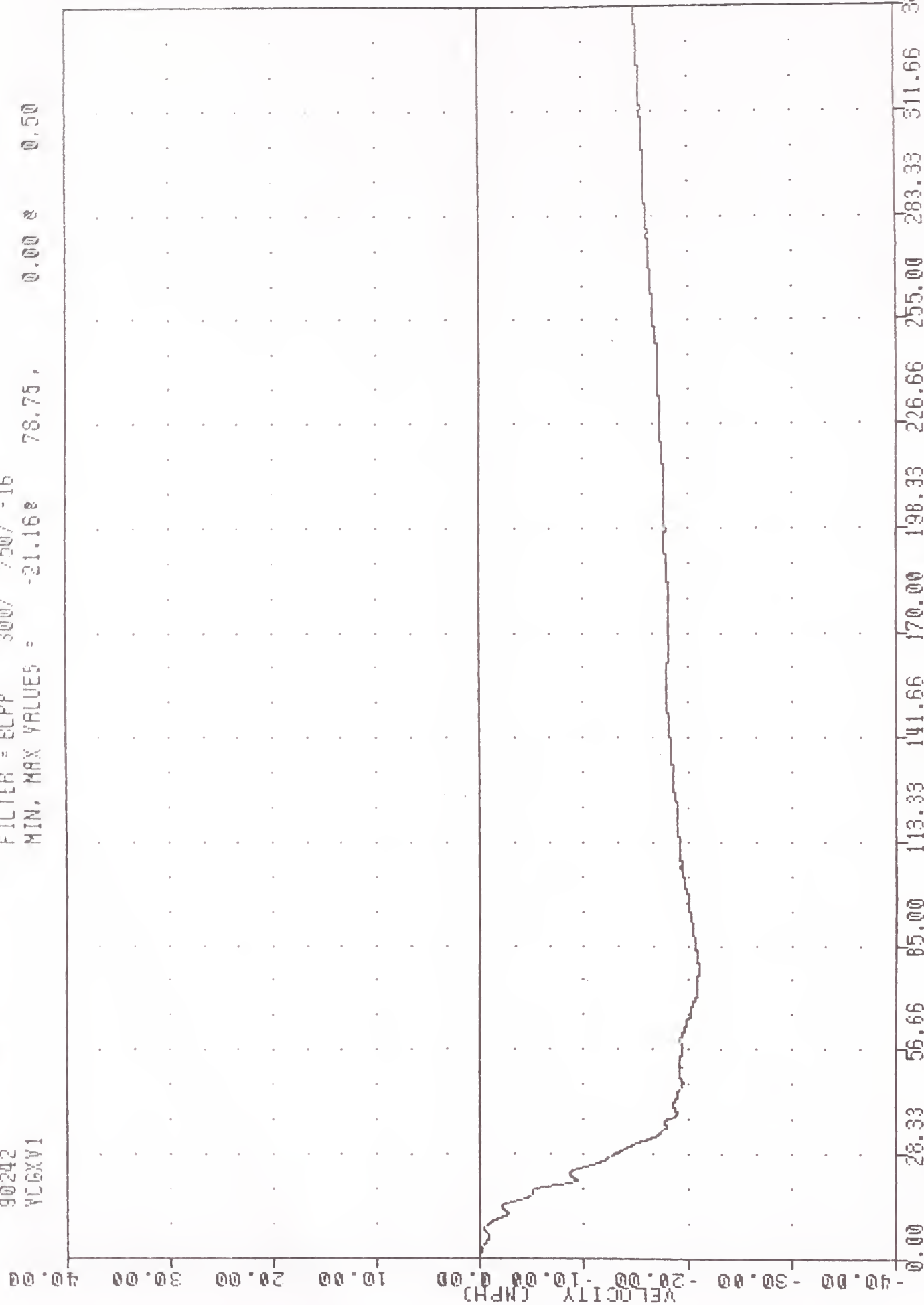
FILTER = BLPF 300/ 750/ -16
 MIN, MAX VALUES = 0.00e 0.00, 25.16 e 63.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH *4
 RIGHT FRONT SILL RESULTANT VELOCITY

300630-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 YCGXV1

FILTER = ELPP 300/ 750/ -16
 MIN, MAX VALUES = -21.168 78.75, 0.00 0.50



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH *4
 VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900830-4 , TRC

CRASH III DAMAGE ALGORITHM

90242

YCGYV1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -0.75e 45.38 , 4.23 e 337.38

40.00

30.00

20.00

10.00

0.00

VELOCITY (MPH)

-10.00

-20.00

-30.00

-40.00

-50.00

0.00

28.33

56.66

85.00

113.33

141.66

170.00

198.33

226.66

255.00

283.33

311.66

340.00

368.33

396.66

425.00

453.33

481.66

510.00

538.33

566.66

595.00

623.33

651.66

680.00

708.33

736.66

765.00

793.33

821.66

850.00

878.33

906.66

935.00

963.33

991.66

1020.00

1048.33

1076.66

1105.00

1133.33

1161.66

1190.00

1218.33

1246.66

1275.00

1303.33

1331.66

1360.00

1388.33

1416.66

1445.00

1473.33

1501.66

1530.00

1558.33

1586.66

1615.00

1643.33

1671.66

1700.00

1728.33

1756.66

1785.00

1813.33

1841.66

1870.00

1898.33

1926.66

1955.00

1983.33

2011.66

2040.00

2068.33

2096.66

2125.00

2153.33

2181.66

2210.00

2238.33

2266.66

2295.00

2323.33

2351.66

2380.00

2408.33

2436.66

2465.00

2493.33

2521.66

2550.00

2578.33

2606.66

2635.00

2663.33

2691.66

2720.00

2748.33

2776.66

2805.00

2833.33

2861.66

2890.00

2918.33

2946.66

2975.00

3003.33

3031.66

3060.00

3088.33

3116.66

3145.00

3173.33

3201.66

3230.00

3258.33

3286.66

3315.00

3343.33

3371.66

3400.00

3428.33

3456.66

3485.00

3513.33

3541.66

3570.00

3598.33

3626.66

3655.00

3683.33

3711.66

3740.00

3768.33

3796.66

3825.00

3853.33

3881.66

3910.00

3938.33

3966.66

3995.00

4023.33

4051.66

4080.00

4108.33

4136.66

4165.00

4193.33

4221.66

4250.00

4278.33

4306.66

4335.00

4363.33

4391.66

4420.00

4448.33

4476.66

4505.00

4533.33

4561.66

4590.00

4618.33

4646.66

4675.00

4703.33

4731.66

4760.00

4788.33

4816.66

4845.00

4873.33

4901.66

4930.00

4958.33

4986.66

5015.00

5043.33

5071.66

5100.00

5128.33

5156.66

5185.00

5213.33

5241.66

5270.00

5298.33

5326.66

5355.00

5383.33

5411.66

5440.00

5468.33

5496.66

5525.00

5553.33

5581.66

5610.00

5638.33

5666.66

5695.00

5723.33

5751.66

5780.00

5808.33

5836.66

5865.00

5893.33

5921.66

5950.00

5978.33

6006.66

6035.00

6063.33

6091.66

6120.00

6148.33

6176.66

6205.00

6233.33

6261.66

6290.00

6318.33

6346.66

6375.00

6403.33

6431.66

6460.00

6488.33

6516.66

6545.00

6573.33

6601.66

6630.00

6658.33

6686.66

6715.00

6743.33

6771.66

6800.00

6828.33

6856.66

6885.00

6913.33

6941.66

6970.00

6998.33

7026.66

7055.00

7083.33

7111.66

7140.00

7168.33

7196.66

7225.00

7253.33

7281.66

7310.00

7338.33

7366.66

7395.00

7423.33

7451.66

7480.00

7508.33

7536.66

7565.00

7593.33

7621.66

7650.00

7678.33

7706.66

7735.00

7763.33

7791.66

7820.00

7848.33

7876.66

7905.00

7933.33

7961.66

7990.00

8018.33

8046.66

8075.00

8103.33

8131.66

8160.00

8188.33

8216.66

8245.00

8273.33

8301.66

8330.00

8358.33

8386.66

8415.00

8443.33

8471.66

8500.00

8528.33

8556.66

8585.00

8613.33

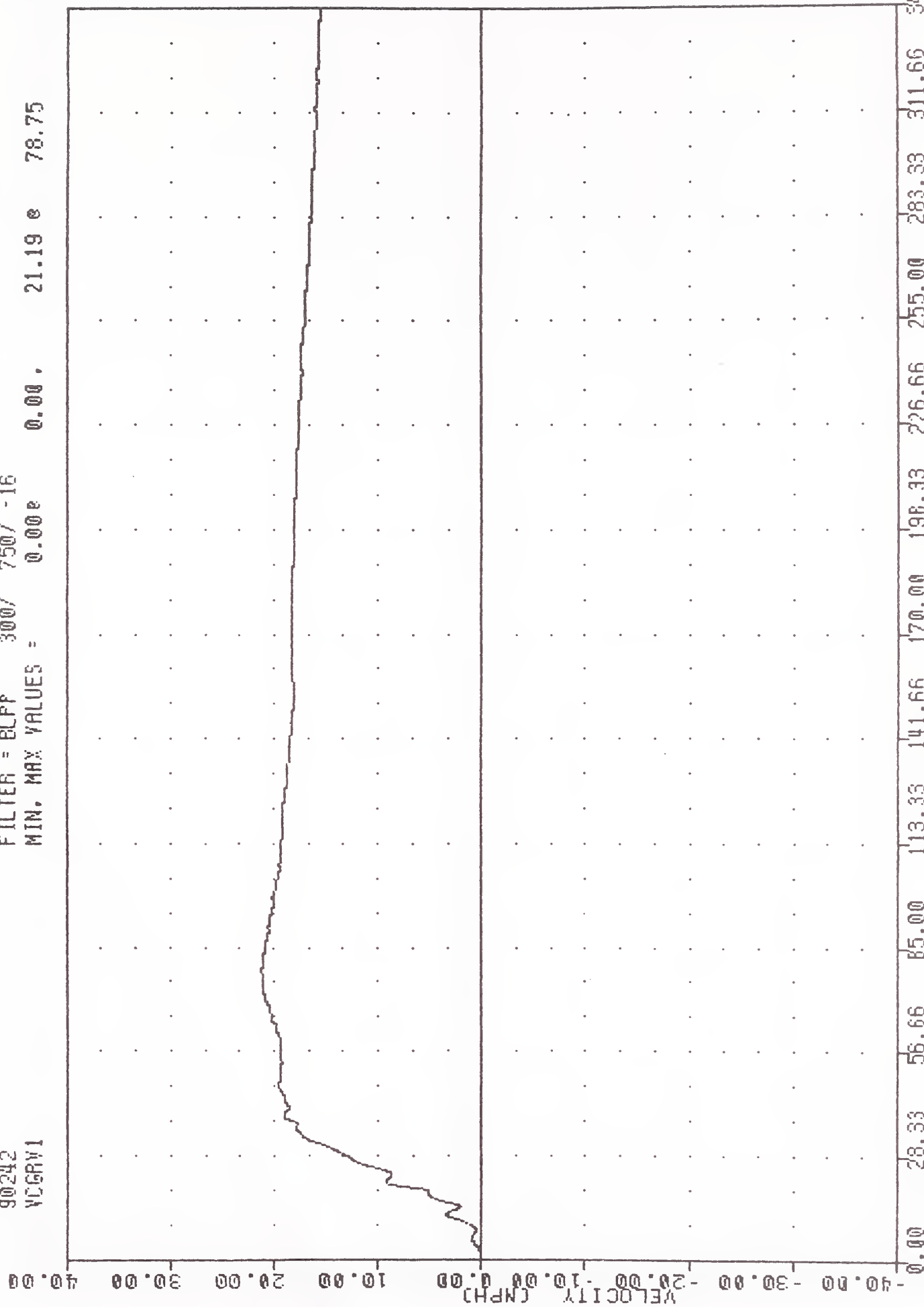
8641.66

8670.00

8698.33

900030-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 VCGRY1

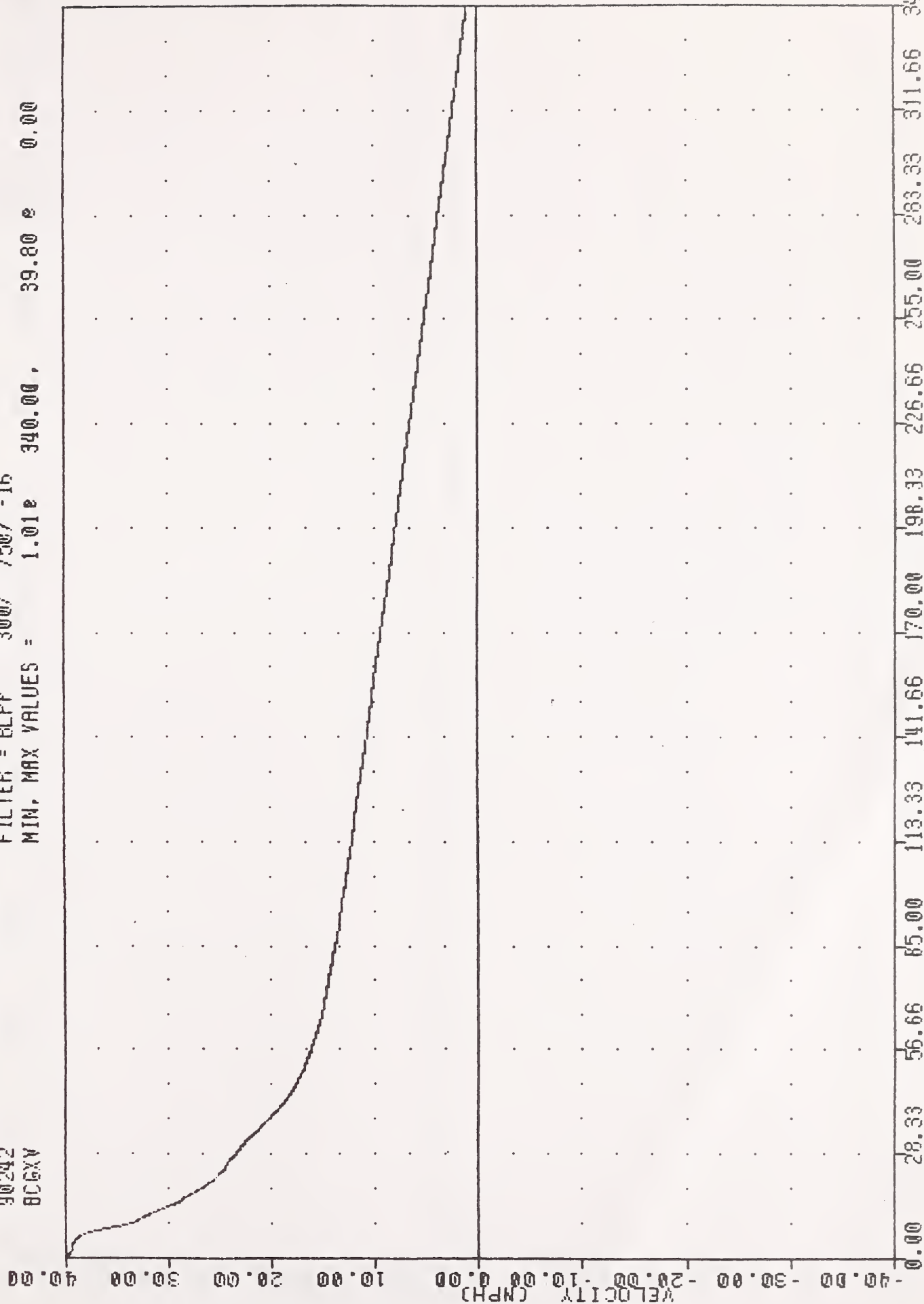
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00. 21.19 e 78.75



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 VEHICLE CG RESULTANT VELOCITY

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGXV

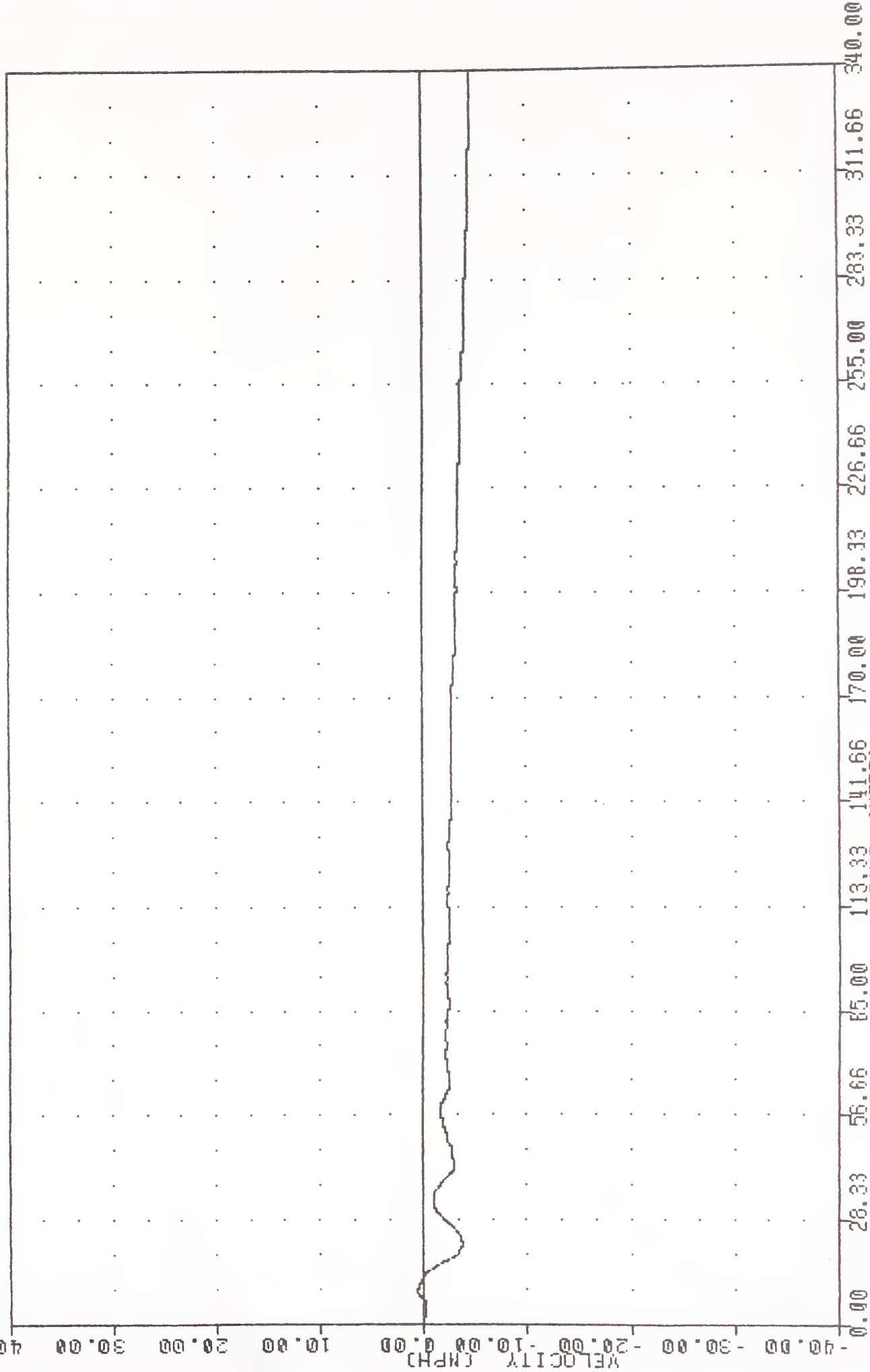
FILTER = ELPP 300/ 750/ -16
 MIN, MAX VALUES = 1.01e 340.00, 39.80 e 0.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

900830-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90242
 BCGYV

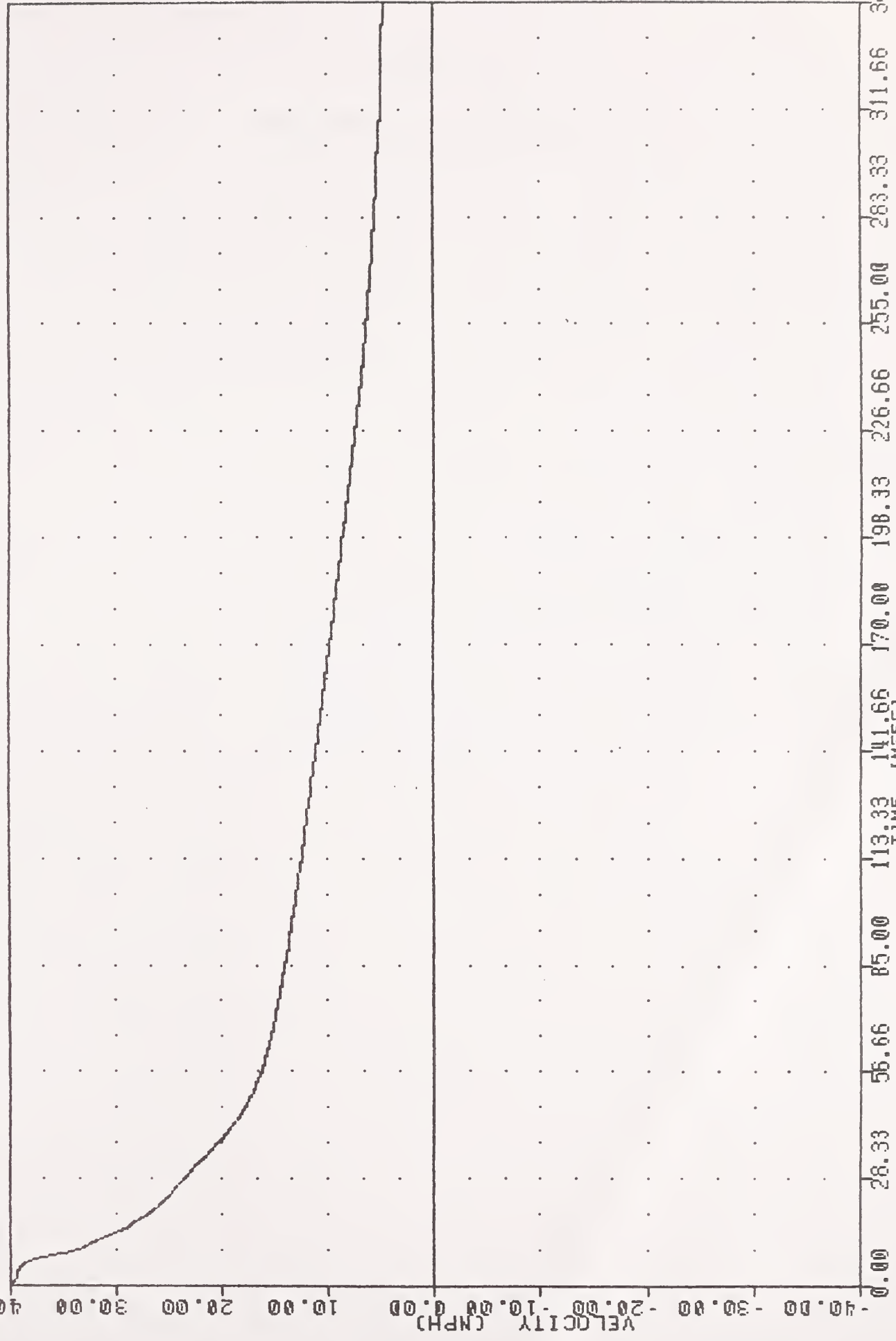
FILTER = BLFF 300/ 750/ -16
 MIN, MAX VALUES = -4.69e 340.00, 0.63 e 3.63



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH #4
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

900830-4 TAC
CRASH III DAMAGE ALGORITHM
90242
BCGRV

FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = 4.798 337.38, 39.80 e 0.00



CONTOURED MOVING BARRIER INTO FORD ESCORT AT 39.8 MPH *4
MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

APPENDIX C

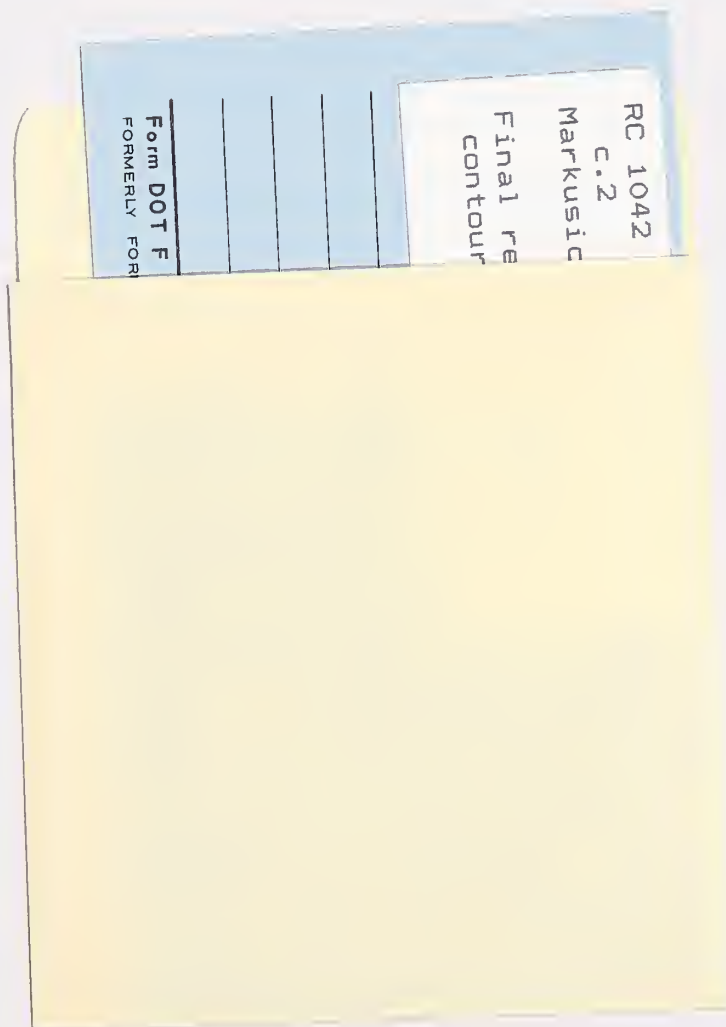
MISCELLANEOUS TEST INFORMATION

VEHICLE ACCELEROMETER INFORMATION

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	LEFT FRONT SILL	X	ENDEVCO	7264	CH11H	FORWARD
	LEFT FRONT SILL	Y	ENDEVCO	7264	CB25H	RIGHT
2	RIGHT FRONT SILL	X	ENDEVCO	7264	BP34J	REAR
	RIGHT FRONT SILL	Y	ENDEVCO	7264	CC83H	LEFT
3	VEHICLE CENTER/GRAVITY	IMPACT DIRECTION		7264	CJ34H	FORWARD
	VEHICLE CENTER/GRAVITY	PERPENDICULAR TO				
		IMPACT DIRECTION		7264	CL73H	LEFT

MOVING BARRIER ACCELEROMETER INFORMATION

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	MOVING BARRIER					
	CENTER OF GRAVITY	X	ENDEVCO	7264	CH97H	FORWARD
	MOVING BARRIER					
	CENTER OF GRAVITY	Y	ENDEVCO	7264	CJ04H	LEFT



SIGN CONVENTION

ALL DUMMY, BARRIER AND VEHICLE CHANNELS:

+X: FORWARD

+Y: LEFTWARD

+Z: UPWARD

+FORCE: TENSION

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